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Journal of English and Foreign Literature, Science, and the Fine Arts.

No. 886. LONDON, SATURDAY, OCTOBER 19, 1844. PRICE FOURPENCE (Stamped Edition, 5d.

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LONDON, SATURDAY, OCTOBER 19, 1844.

REVIEWS

An Oration, delivered before the Cincinnati Astronomical Society, on the occasion of laying the Corner Stone of an Astronomical Observatory. By John Quincy Adams. Cincinnati, Shepard & Co.

WE have before remarked [*ante*, p. 219] on the American practice of delivering lectures and orations, and adduced what appeared to us the reasons of the custom. But it is not only that literary and professional men are in the habit of thus publicly discoursing on a subject of art, science, or manners; but those who have name and authority are occasionally found adopting the national peculiarity. So high in political estimation stand many of these orators, that the discourses thus delivered become valuable documents, and a collection of them hereafter will furnish some of the best materials for American history. Such an oration is the one that heads the present article: an oration delivered by no less a person than a former president of the United States, would be interesting on any occasion; as a declaration in favour of science it becomes especially mark-worthy. Imagine a person of independent political rank in the old world thus assuming the professor's chair, and expatiating on astronomy to the length of nearly sixty closely printed octavo pages—some four hours' good speaking, as we take it, on a moderate calculation! This, perhaps, may be hinted as the abuse to which a practice otherwise laudable is particularly subject. Talkativeness is accordingly an American vice,—in the senate, in the schools, and at the bar. We would not, however, dwell on this defect, but willingly overlook it, for the sake of the good which it accidentally accompanies. It may be easily got rid of, and undoubtedly will be, when it has served the subsidiary benefit to which it is conducive; for in national progress there is nothing in vain. Incidental envelopements protect the seed during the earliest periods of growth and transition, but drop off as it advances to the final state for which it is destined. Let us, therefore, take the good as we find it, and not neglect it on account of the mere temporary errors which it is sure to outgrow. America hath hitherto done little for the cause of science; its encouragement supposes more progress than she has yet been able to realize; but she has too many sons of cultivated intelligence for efforts and suggestions not to have been frequently made; and among them Mr. Adams has, on more than one occasion, taken the initiative; but such attempts, as we might naturally expect, have been premature. During his presidency, in December, 1825, he sent a message to Congress, in which he recommended the establishment of a national university and an astronomical observatory; and referred to the hundred and thirty of those "lighthouses of the skies" existing in Europe, as casting a reproach on America for its want of one. The phrase we have quoted met on that occasion with some ridicule, and the whole proposal produced great excitement, and met with much reproach.

It was a proper *amende* for such conduct, that to Mr. Adams should be granted the honour of laying the foundation-stone of this astronomical observatory at Cincinnati, and that he should have thus the opportunity of justifying his long enduring love of science, in the oration before us. In it there is not much that is likely to interest the people of the old world; we are familiar with the theme, and recognize its importance, as the observatories everywhere established are good evidence. Under special circumstances, however, the orator on this occasion was wise in adverting to them, and he accordingly gave an outline sketch, treating of the invention of the zodiac, the reformations of the calendar, the origin of the science of astronomy, its association with astrology and superstition, with navigation and history—and occasionally dilated on the most interesting facts and names connected with the subject. While doing this, Mr. Adams confesses his preference for physical, rather than for moral philosophy:—

"The age of Socrates, and Plato, followed close upon that of Meton, and, it is generally believed, that Socrates, by confining his philosophical investigations to mind and morals, rather discouraged, than promoted, the application of the faculties of the soul to the phenomena of physical nature. A similar prejudice has prevailed among many of the eminent teachers of mankind, from that time to the present, whether, because the study of physical nature, combined with that of the mathematics (and, without this combination, nothing useful to mankind can ever be accomplished by the study,) necessarily requires more painful and toilsome exercise of the intellectual faculties, than speculations upon morals, religion, politics, and the sports of imagination; or, whether, in these studies, there is something more congenial to the nature of a being, compounded of perishable and immortal elements, the philosophers of associated man, have found more favour with their pupils, than the searchers into causes, necessarily leading up to the first cause, impenetrable to human search. The vulgar fable of the astronomer, who, in gazing upon the stars, stumbles into a ditch, though, probably, first devised only to deride the devotion of weak and superstitious minds, to the absurd and baseless visions of Astrology, has an unfortunate tendency, to deter the inclinations of the young, from the sublimest and the most useful of all contemplations, to the meditative and energetic mind,—the structure of that universe, of which itself is an imperishable, though an infinitely diminutive atom. The poet, who sang, —the proper study of mankind, is *man*, narrowed down the faculties of the human soul to a nut-shell. Man, is, no doubt, the proper study of mankind,—but, so is nature—so is that world in which he is placed, in probation, with rights to enjoy, and duties to fulfil—so is that Being, all wise, all good, all powerful, his creator, and his judge—so is that firmament, over his head—so is that earth, under his feet—so is that atmosphere, which is his breath of life—so are those waters, over which he must learn to float, but in which he cannot live—so are those animal, vegetable, and mineral realms of nature, given him by the bounty of his maker, for food and raiment, for strength, beauty, and grace.—All, all, are studies for mankind, as proper, and as necessary as man himself."

We cannot pause to show what there is one-sided in this; but we may hint, that many sound reasoners are agreed that the highest and most sacred truths are only attainable by moral evidence, and not at all demonstrable by means of physical science; though the latter may corroborate and illustrate, by another class of analogical facts, the intuitions of the former. In the next passage, Mr. Adams is perhaps kinder to the astrologer than in the one last quoted to the moralist:—

"We must remember, that of the genuine and the spurious science, of the chaste matron and the painted harlot, the parentage is one and the same. They are sisters of one and the same descent, and their family features are so much alike, that it requires almost the eye of intuition to distinguish the virtue from the vice. The study of astronomy and of astrology both, consist of a mere comparison between the relative location in infinite space; and movements of the heavenly bodies in their aspects towards one another. The firmament consists of innumerable multitudes of these shining bodies suspended in the immensity of space, moving in silent harmony, and incomprehensible order, day after day, over the head of man, from the cradle to the grave. They are exposed to the perception of only one of his senses, the eye—inaccessible to all the rest. What they are, whence they came, where they are going, and how they exist, suspended upon nothing—he knows not, but is left to discover, by the combining and discriminating powers of his intellect. None of the machinery which he invents to assist him in his researches, exist in nature. They are round, as they appear to his eye; the sun and moon, with disks of considerable dimensions; the largest of the stars, scarcely bigger than the head of a pin, and the rest tapering off into graduated magnitude, to a barely discernible point, and still swarming, as the power of vision fails, but all apparently round. The earth on which he dwells, never appears to him as one of these stars of the firmament; till after ages upon ages of observation, he finds she is one of the smallest of them. A satellite of the sun, and still round; spherical, though not a perfect sphere. To study the nature of these immeasureable masses, he must divide them into parts. He constructs then, artificial globes, and divides them into circles of latitude and longitude of three hundred and sixty degrees, sub-divided into minutes and seconds. He provides them with poles, with an equator, a zodiac, and an ecliptic, a zenith, and a nadir, equinoctial and solstitial points; polar circles, tropics and colures. Of all this, there is nothing in nature, neither the globe of earth, nor the firmament of heaven; they are merely human inventions, to assist the observations of man in his searches after physical truth. But all this machinery is equally used by the astronomer and the astrologer. And as they compare the relative positions of the heavenly bodies, in their complicated motions, the bodies which cross each other, in different aspects, known alike to the astronomer and the astrologer, as in conjunction, or in opposition, in quadrature or in trine. The various, different, and in many respects, opposite motives which have impelled mankind to the study of the stars, have had a singular effect in complicating and confounding the nomenclature of the science. Religion, idolatry, superstition, curiosity, the thirst for knowledge, the passion for penetrating into the secrets of nature; the warfare of the huntsman by night and by day, against the beasts of the forest and of the field. The meditations of the shepherd in the custody and wanderings of his flocks and herds, the influence of the revolving seasons of the year, and the successive garniture of the firmament, upon the labours of the husbandman, upon the seed time and the harvest, the blooming of flowers, and the ripening of the vintage, the polar pilot of the navigator, and the mysterious magnet of the mariner —all in harmonious action, stimulate the child of earth and of heaven, to interrogate the dazzling splendours of the sky, to reveal to him the laws of their own existence. He sees his own comforts, his own happiness, his own existence identified with theirs. He sees the Creator in creation, and calls upon creation to declare the glory of the Creator. When Pythagoras, the philosopher of the Grecian schools, conceived that more than earthly idea of the music of the spheres, when the darling dramatist of nature inspires the lips of his lover on the moonlight green, with the beloved of his soul, to say to her—

> Sit, Jessica—Look how the floor of heaven
> Is thick inlaid with patterns of bright gold.
> There's not the smallest orb which thou beholdest,
> But in his motion like an angel sings,
> Still choiring to the young-eyed cherubim.

Oh! who is the one with a heart, but almost wishes to cast off this muddy vesture of decay, to be admitted to the joy of listening to the celestial harmony."

The following remarks on the zodiac are judicious:—

"When, and how, and by whom the zodiac, as it is now exhibited in all our celestial maps, and all our annual almanacs, was invented, no effort of learning has yet been able to discover. Its origin is undoubtedly fabulous, connected with the whole system of the mythology of Greece, with the twelve labours of Hercules, the expedition of the Argonauts to Colchis, for the golden fleece: the genealogy of Jupiter, Neptune, and Pluto, their common parent Saturn, and the final solution of the whole system, in the allegorical impersonation of heaven and earth. Here astronomy and astrology, idolatry and superstition, agriculture and navigation, all march hand in hand, turning history into romance, religion into falsehood; the cultivation of the earth, and the navigation of the seas into fraudulent imposture.

By what magical incantation, the belief of this system could be imposed upon whole nations of men, imagination can scarcely conceive. An imaginary belt is cast round the portion of the heavens, within which the solar system revolves. This belt is divided into twelve partitions, each embracing thirty degrees of the spherical circumference. Within each of these partitions, clusters of stars, as they are visible in the sky, are gathered as into one community; and over each of them the figure of an earthly animal is stamped, covering the whole constellation, but bearing no sort of resemblance to it. The very positions and attitudes of the animals are painted on the celestial atlas; names are given to all the brightest of the stars; and now, at least three thousand years after this uncouth fiction was first palmed upon the credulity of mankind, we find it imposed upon us still, and we cannot learn to recognise the bright stars of heaven in the path of the sun, without painting them to the mind's eye, on the horns of a reposing ram, in the eye of a raging bull, on the foreheads of a pair of twin children, and in the fantastic and incoherent imagery of animals, wild and tame, of earth, air, fire and water, jumbled together, as if to resolve the created universe into its primitive elemental chaos. Nor is this wild and scarcely conceivable confusion yet exhausted. When the worship of idols had thus insinuated itself into communion with the study of astronomy, the population of the zodiac was extended over the whole firmament. The chief of the gods, Jupiter, and even the inferior idols of Olympus, were invested with the prerogative of placing favourite mortals to seats of honour in the heavens; and thus, not only Hercules and Perseus, but Adonis and Narcissus and Daphne, and Niobe and her daughters, and multitudes of others, not more meritorious, rose to be dignitaries in the skies, till not only the hair of Berenice became a constellation, but the infamous Antinous a star of resplendent magnitude. To crown this infatuation of besotted learning, modern astronomers, impelled by usurping vanity or base adulation, have assumed the presumption of placing among the stars not only the shield of Sobiesky, and the crown of the Prussian Frederick, with the sceptre of Brandenburg, but have cast to the hunting dogs the rotten heart of Charles the First. The printing press, the electrical apparatus, and the air pump, may be better entitled to this symbol of immortality; but their intrusion upon this, already overcharged canvas, only adds to its unnatural complication, and encumbers the study with supernumerary difficulties and obstructions."

Our readers, on referring to a former volume of the *Athenæum*, [No. 702] will find that this subject has already exercised the consideration of European astronomers, and that no less a a man than Sir J. F. W. Herschel translated Dr. Olbers' work on the subject, by way of aiding in the "reformation of the constellations, and a revision of the nomenclature of the stars." The difficulty thrown in the way of science by needless and heterogeneous accumulations, should doubtless be got rid of with all possible expedition. The complaint, however, made in 1841, has quite as good grounds as ever to be made in the year 1844; (p. 953) so slow is the progress of all reforms, that the evil still exists. The following reflections are suggestive:—

"In the lives of Copernicus, of Tycho Brahe, of Kepler, and of Galileo, we see the destiny of almost all the great benefactors of mankind. We see, too, the irrepressible energies of the human mind, in the pursuit of knowledge and of truth, in conflict with the prejudices, the envy, the jealousy, the hatred, and the lawless power of their cotemporaries upon the earth. The institution, by the officers of which, Galileo suffered every persecution, short of death, which man could inflict upon him, was the invention of Ignatius Loyola, a man, in all the properties which constitute greatness, not inferior to Galileo himself. The profound meditation, the untameable activity, the untirable pertinacity, the unconquerable will, stiffening against resistance, overcoming obstacles, bearing down opposition, sweeping its way along to its intended object, and, like faith, casting mountains into the sea, were alike in them both. What, then, was the difference between them? It was in the objects, to which they severally applied these properties, in action. Ignatius, under the influence of religious fanaticism, invents an engine of despotic power, a rod of iron, and puts it into the hands of a frail mortal man, already invested, by the infatuation of the age, with imputed infallibility. Galileo interrogates the physical creation, for the causes of its own existence, and his ultimate object is the triumph of truth. To which of the contending causes must the voice of posterity say—God speed? To the champion of truth—and the truth shall ultimately prevail."

To the merits of the elder Herschel, Mr. Adams does justice; and commends the impulse given by his discoveries to astronomical science. While doing this, however, he laments "that the spark of enthusiasm never crossed the Atlantic." That the autocrat of all the Russias should, in the cause of science, have acted a more glorious part, only increases the pain of the reflection. The oration is thus concluded:—

"While our fathers were colonists of England, we had no distinctive, political, or literary character. The white cliffs of Albion covered the soil of our nativity, though another hemisphere first opened our eyes to the light of day, and oceans rolled between us and them. We were Britons born, and we claimed to be the countrymen of Chaucer and Shakspeare, Milton and Newton, Sidney and Locke, Arthur and Alfred, as well as of Edward the Black Prince, Harry of Monmouth, and Elizabeth. But when our fathers abjured the name of Britons, and 'assumed among the powers of the earth the separate and equal station to which the laws of nature and nature's God entitles them,' they tacitly contracted the engagement for themselves, and above all, for their posterity, to contribute, in their corporate and national capacity, their full share; aye, and more than their full share, of the virtues that elevate, and of the graces that adorn the character of civilized man. They announced themselves as *reformers* of the institution of civil society. They spoke of the laws of Nature, and in the name of Nature's *God;* and by that sacred adjuration they pledged us, their children, to labour with united and concerted energy, from the cradle to the grave, to purge the earth of all slavery, to restore the race of man to the full enjoyment of those rights which the God of Nature had bestowed upon him at his birth,—to disenthral his limbs from chains,—to break the fetters from his feet, and the manacles from his hands, and to set him free for the use of all his physical powers for the improvement of his own condition. The God, in whose name they spoke, had taught them in the revelation of his gospel that the only way in which man can discharge his duty to him, is by loving his neighbour as himself, and doing with him as he would be done by, respecting his rights, while enjoying his own, and applying all his emancipated powers of body and of mind, to self-improvement and improvement of his race. Among the modes of self-improvement and social happiness, there is none so well suited to the nature of man as the assiduous cultivation of the arts and sciences. The opportunities and dispositions of individuals, for the cultivation of any one specific art or science are infinitely diversified. One general impulse nerves the arm and animates the soul; but, in giving direction to that impulse, every one may best follow the bent of his own inclination. We have been sensible of our obligation to maintain the character of a civilized, intellectual and spirited nation. We have been, perhaps, over boastful of our freedom and over sensitive to the censure of our neighbours. The arts and sciences which we have pursued with most intense interest and persevering energy have been those most adapted to our own condition. We have explored the seas, and fathomed the depths of the ocean, and we have fertilized the face of the land. *We*—you—*you*, have converted the wilderness into a garden, and opened a paradise upon the wild. But have not the labours of our hands, and the aspirations of our hearts, been so absorbed in toils upon this terraqueous globe, as to overlook its indissoluble connexion, even physical, with the firmament above? Have we been of that family of the wise man, who, when asked where his country lies, points, like Anaxagoras, with his finger to the heavens? Suffer me to leave these questions unanswered."

Mr. Adams has lately spoken out so nobly, on the Texan treaty, against the perpetuation of slavery, in any part of America or the world, and indeed has so frequently and solemnly warned his countrymen, by his speeches in Congress, and his addresses to his constituents, and the people of the Free States, of the duty and policy of its instant abolition, that we feel pleasure in having an opportunity, not of a political nature, to pay a passing tribute of respect to his character and talents.

Herod the Great. Part II. — [*Herodes der Grosse, &c.*] By Frederick Rückert. Williams & Norgate.

During a stirring epoch in German history, when the public actions of the day seemed to offer themes to the poet rich in human interest, Goethe, with his characteristic shrinking from all the great movements of the times, hid himself in oriental dreamery, and, at the suggestion of Von Hammer's version of Hafiz, gave to the public, as the most unseasonable present he could think of, just then, his 'Indian Divan.' Perhaps he wished to soothe the nerves of the people, unused to strong exertion, by a transition from troubled Fatherland to the tranquil, drowsy East, from striving freedom to stationary despotism, from activity to quietism. Strange to say, this poetry of old age found warm admirers, at least among the young poets of Germany, and gave an oriental tone to succeeding poetry, such as we find in Freiligrath and Rückert, and which Herwegh and others of the new school, with Joan of Arc for their leading muse, delight to ridicule. Herwegh calls Rückert—

> A flower from the Ganges transferred to the Spree,
> Under glass, for the ladies and children to see.

As the Minnesingers turned away from all the world-movements of their period to string together effeminate rhymes, Rückert, Platen, and others neglected all actual and living interests, preferring beauty of form and polish of versification to strength and importance of meaning. The consequence is, that, though these and other writers of pretty oriental songs and legends are pleasant poets in their way, they cannot be named in the same breath with the poets who elevate, cheer, and direct the spirit of the times in which they live. Freiligrath has earnestness in his poems, and his song of the Silesian Weaver would lead us to invite him home from Arabia and Africa, to celebrate the lives of those who dwell in the valleys of his fatherland. Rückert turns away from the unpoetical aspects of European life, to amuse himself with Arabian fairy tales and legends of the Caliphs. On the other hand, the new political school describes no life at all: when the transitory political interest, which makes empty verses seem to mean something, has passed away, their so-called poems will be found utterly void of all human interest. They protest against all that is, and tell us nothing of what is to come, except that, when all obsolete things (Rückert's oriental poetry included) are swept away from the earth, certain abstractions called truth and liberty will remain behind, to be celebrated for ever in very monotonous strains. But at present we have to attend to Rückert, and not to Herwegh. Our poet has something of Goethe's fine faculty of imitation: he can breathe soft melodious strains, that seem to float from the Persian gardens, where the "gul" and "bulbul" made music together in the ear of Hafiz, or can give proverbs of sententious wisdom with all the mild gravity of a Brahmin; yet all this is not true genial imitation. In the same style, a German or English poet might cultivate the manner of Homer, till he should come to think and speak in good Homeric fashion of swift-footed heroes, rosy-fingered and ox-eyed

goddesses, &c. Surely this would be like Homer in one way. "Alike, and yet how different!"—for Homer comprehended, in his epic, the existing civilization, the actual lives of his countrymen, glorified and exalted by their mythological creed. He, at least, kept up with, if he did not go before, his race in the march of mind. This, your modern plagiarist, who would lead us back to Greece, does not do. He may be an imitator; but he certainly is not an emulator of Homer.

Frederick Rückert now comes before us with the second part of a rather tedious dramatic poem, and invites our interest in the fortunes of 'Herod the Great and his Sons.' We call it a dramatic poem, but except that it is written in correct blank verse, and in the form of dialogue, it has little in it that deserves to be called either poetical or dramatic. We have read it carefully; and have again and again turned over the pages in search of any one passage of genuine poetic inspiration. The whole piece is of such an equal flatness, that we are as much at a loss where to find an extract, as we should be where to choose a site upon Romney Marsh for advantages of scenery.

Why Rückert should have fitted these dry, prosaic dialogues into blank verse, correctly measured, with ten syllables to a line, but devoid of all flow, energy, and variety, we cannot tell—the advantages of prose are not to be sacrificed, unless for the sake of genuine musical inspiration. The conversations often fall into such sententious queries and replies, of two or three words each, that even the little music there was in the blank verse is lost. If the author intends the composition for a poem, he must have a wide definition of poetry; or if he conceives it to be dramatic, he must have a very narrow idea of the drama. His characters turn out, like the knife-grinder's story, no characters at all. There is no difference between Alexander and Aristobulus, except in their names. They might exchange speeches without damage to the piece. Then, again, where lies the distinction between the two brides, Glaphyra and Berenice, unless in one's talking more than the other? We might go through all the rest of the *dramatis personæ* with the same unanswered questions. Even Antipater is only a common, plotting knave: there is no individuality about him. Herod is a tyrant, and undistinguishable, except by his name, from twenty other tyrants. The author has employed about thirty shadowy personages, to tell a story which he might have told, with equal dramatic effect, in his own person. He is a pleasant poet in his own way, and can write a sweet oriental lyric, or indite pensive, moralizing stanzas,—witness his address of 'A dying Flower to the Sun,' which has found a good English translation; but he is not the poet to revive the past in a dramatic form; nor to work powerfully upon the mind of the present. He is, rather, one of those who are so far from being able to carry on the movement of the age, that they cannot be borne along by it, but must be left behind. We do not join with the critics who call poetry a drug, and talk of an "overstocked market," to account for the neglect of many volumes of versification. True, high poetry will always be equally rare and valuable. It is no more in danger of being vulgarized and depreciated, than diamonds are of coming down to the price of Newcastle coals; for it is the essential characteristic of every great poetical work, whatever may be the intellectual status of the age, to rise above it. If it is, then, the true mark of high poetry that it presents to us the extraordinary, the new, and the rare, how can we talk of a *glut* of poetry as some have talked? This glut has lasted now, at least, a quarter of a century: and where, we ask, are the productions which have been the cause of it? How many volumes filled with true poetry, of the class to which we have pointed, has the "overstocked market" to show?

We have so often, lately, intimated the school of poetry to which we look forward with earnest expectation, that we must take this opportunity of bidding farewell to Rückert and his associates, to develope, more plainly, our idea of the poetry now desiderated, lest we should leave ourselves open to the charge which we have urged against Herwegh and his fellows, of renouncing the old school before we have formed any definite notions of the new school that is to take its place. We look forward, then, to the rising of a poet who shall do for modern times, what the old poets did for ancient times. The Iliad and the Odyssey give us the life of the early Grecian tribes. Horace gives us the social and intellectual life of the Augustan age. Dante gives us the inward spirit of the Papal Middle Ages. The old Niebelungen-lied displays the wild heroic age from which it sprung. The minstrelsy of chivalry, with all its affectation, has some impress of reality, and even the popular German doggrel, which succeeded the lays of the Minnesingers, is characteristic of the awakening mind of the people at that period. Now all these schools of poetry are distinct from the school which seems to have arisen in emulation of Goethe's universality. He kept his mind free from any pressing time interest, like a broad mirror placed upon a pivot, that might be turned to reflect any images of the past. The disciples of this school have imagined that it is only necessary to choose some historical theme, and to array it in an epic or a dramatic form, with a certain quantity of metaphorical decoration, to make a poem. And we cannot so far elevate the conventional definition of poetry, as to deny the name to compositions of such a description; but we must contend, that there is a wide difference between such productions, and a work of power to sum up the process of the past, by awakening, explaining, and guiding the human interest of the present age. In contrast to the vague, general character of modern productions, poetry must develope a more definite object and interest, not in the style of a didactic treatise, but in its own rich and living style,—an interest grasping all the powers of mind and soul of living and working men. Such an interest there is still in the world, for all men who are not asleep, in the celebration of all that is noble, deep, and enduring among men and their enterprises, in the patience of the poor, the hopes of genius, and the labours of science pregnant with future meanings, in contrast with all the conventional falsities, outworn antiquities, and hollow forms of the world. When a genius is required by the times, we have faith to expect him; and we are not without hope of seeing, even in our day, the rising of a poet who shall reveal to us a world of new meanings in the common things that lie around us, and cast into shade all the old-world dreams of imitative and historical versifiers.

Rides in the Pyrenees. By Miss S. Bunbury. 2 vols. Newby.

Miss Bunbury is not precisely such a traveller as Miss Costello—she has neither her elegance nor information; and takes us over the ground she has travelled in a somewhat dry antiquarian manner, and yet with a flippancy of style which is not altogether to our taste. But though not a skilful writer, Miss Bunbury has a shrewd womanly tact and power of observation and description, and shows withal a lively disposition, which is always attractive. The following incident is amusing:—

"When you leave a boat one day, and continue your route by it the next, it seems natural to expect to see the same companions you had left. I was almost surprised when I did not find poor Monsieur M——, and his blanket and pipe, in the spot where I had left them. And, perhaps, this was the reason why I remarked the appearance of the person whom I did find in it. He was not at all like Monsieur M——; a very young man, certainly, under twenty years of age, with long black hair curling down low in his neck; his eyes, dress, and whole appearance seemed to be those of a *genius;* and I at once said to myself that he was an artist taking sketches on the Loire. The facility of French manners did not leave me long unacquainted. * * And in a very short time he relieved me from all my speculations, by affirming himself to be a maker of *bon-bons*, or in other words, a *confiseur*. * * The young *confiseur* was going to a place which I thought it probable I, too, should visit, and he most politely offered to be my *cicerone* in seeing its lions, an offer which I gladly accepted. * * The *confiseur* gave me his name, and recommended a certain hotel where he was known. On my arrival at that ancient city, we went by mistake to another hotel; there I demanded of the *garçon*, as I thought very correctly, if he knew Monsieur G——, the *confiseur*, as I wanted to see him; he thought it probable madame knew him; and after inquiry, informed me that madame did know him, and I could see him the next morning at the church. Oh, I said, that would not do, I could not wait till the next morning,—I must see him that day, or it would be too late; and besides, I much preferred seeing him there to going to a church for that purpose. So I wrote my name and *number* on a card, and begged him to lose no time in conveying it to Monsieur G——, the *confiseur*, and requesting him to come as soon as he possibly could. I had scarcely done speaking before the man had darted away. Some time passed, however; at last a knock came to my door.—'*Entrez*'—it opened, a rustle heard, the room was rather dim; I thought a lady entered, but presently I saw the robes of a priest. Some mistake I thought, and expected to find he at once discovered it, and retired; no such thing, he drew over the chair I was too confused to offer; a look of mysteriousness, yet an encouraging smile on his face. I stared in bewilderment; in pity to me he began to speak, apologising for a little delay; he had been administering the rites of the church to a dying person, or he should have come as quickly as the urgency of my case demanded. At last I stammered out some expressions of surprise, of ignorance why he had come at all. *Monsieur le Père* looked as surprised as myself; and drawing out my card, asked if I had not sent that. 'Yes!' I cried, 'to Monsieur G——, the *confiseur*,—that is, the maker of *bon-bons*.' '*Ma Foi!*' cried the good priest, springing from his chair—'*par exemple!*' and having discovered that it was a *confiseur*, and not a *confesseur* that I wanted, the father-confessor took his leave."

Take, also, an account of some of the pleasant things seen and heard in and about Bagnères, *anent* not only French manners, but English living:—

"There are many pleasant little excursions to be made about Bagnéres; but what I found almost pleasanter from their novelty to me, were the little *réunions* that took place almost every evening in the little apartment of my simple and good-humoured landlady. It was an apartment that opened directly upon the street, and therefore was unceremoniously entered, not only by all her lodgers, who dropped in to enjoy the benefit of the fire they had not above stairs (for though the season was too early for fires generally, the evenings were cold enough to render them particularly agreeable); but also by many variously conditioned beings, who, however unwelcome elsewhere, seemed sure of a welcome to the wide hearth of the amiable Madame Parado. There I sometimes saw the shivering, half-starved, drowsy Spanish Abbé, who, being driven from his own land, houseless, friendless, moneyless, allowed the cathedral priests some hours' longer repose by rising at the 'point of day,' when its bell sounded to tell all sleepers it was time to pray; and there, too, was the stouter French priest, with his bland smile and courteous manner; the military commandant, with stories of bombast and wonder; the sturdy veteran of 'the empire,' who could prove that Napoleon never

lost a battle; the voluble vulgar Frenchwoman, whose voice was worse than the military din that sometimes roared in my ears; and the pretty wife of the French colonel who occupied the first suite of our apartments. Senhor José, myself, and my first Spanish acquaintance, who aided me in finding my habitation, were often mingled up with these various ingredients; and I, being a stranger and foreigner, was usually honoured with a due share of notice; my presence generally turning the theme or themes of conversation on England and the English; and bringing out information or opinions concerning the situation, nature, customs, habits, manners, and qualities of each, which I, a simple native, must be supposed either deaf to, or ignorant of. Thus the voluble vulgar woman I have alluded to before, undertook to give, one evening, partly to me and partly to the rest of 'the world' a description of English *eating*, which certainly had the effect of making me laugh till my tears seemed to flow for the memory of the good things I had left in my country. Unless I had that woman's volubility and rapid utterance, her gesticulation, and the liberty of repeating her words in French, I never could do her description justice. 'Eh! the English do live well!' she began; 'the commandant at Toulouse was a prisoner in England, and he has told me; he saw them, and he says he got to like it. First, for breakfast they take a great round of toast, (and madame took the flat of her hand to represent the toast, drawing the other a little way above it to represent also the action,) 'and they spread it over with a quantity of butter; then they put on that slices of ham and sausages, and—what do you call that other thing the English are so fond of—madam?' 'Ale,' said I, at a guess. 'Yes; oil—they put oil on that, and then they take another round of toast, covered with butter, and lay it on the top, and they eat that, and they drink tea *au lait, at the same time;* they eat and they drink, and they drink and they eat, and that is an English breakfast—eh! they live well, these English! A little note of admiration went round; and, encouraged by the effect of her powers of description, madame went on to enlighten us further respecting English eating. 'Then for dinner they take great *cotellettes* of beef,' (and here the hands were distended about three quarters of a yard apart, to designate the size of each rib of beef, which formed the '*cotellette*,') 'and they only just warm them at the fire; and eat them with great potatoes, boiled, just as they are dug out of the earth—all entire; and they never have but one plate, and they eat the great whole potatoes, and the *cotellette* of beef *tout sanglant**—both together.' Another little murmur of wonder, and a suffocated laugh, encouraged the dame to show her further knowledge of English life and eating. 'Then,' turning to me, 'you have what you call *plomb puddin;* and do you know how they make that? ah! I know all that—*tenez!*' 'They take a great cauldron, and put it over the fire the first thing in the morning; and into that they pour a great quantity of milk and *eau-de-vie;* and then take a vast deal of the fat of the beef, the pure fat, and put it in also; and they thicken it with flour—and—and—what else do you put in your *plomb puddin*, madame?' 'Eggs,' I replied, with much verity. 'Ah! yes, an enormous number of eggs, they put to all that, and then—what else, madame, do you put in your *plomb puddin?*' 'Fruit.' 'Ah! certainly; yes, fruits of all kinds; they chop them together, *all kinds*, and put them into the cauldron, and they stir all up well together, and boil it from morning to evening, and then turn it out into a great basin, and they eat that at dinner with their great raw *cotellettes* (or ribs) of beef, and their whole potatoes; and they never have but one plate—eh! they live well, these English! The commandant learned all their customs when he was prisoner in England, and he told me himself he would be glad to have had their *plomb puddin* every morning for his breakfast: they live so well, these English!'"

Our next extract is also amusing:—

"Strange it is that even at this present day, when people of all countries are thought to form a universal family, the French and English languages remain to some as completely 'dead' as any language can be. The story I am going to relate seems to belong to the year 1815, rather than to 1843. One day the young *employé* who had received me in charge on my first arrival in Bagnéres, came in, looking more thoughtful than usual, and broke silence by asking me to tell him the meaning of the words—'spee-ak Engleesh;' when I had translated the difficult sentence, I naturally wanted to know how he had picked up the words he called so curiously; and he told me that two ladies had come to his office, and one walking a little foremost, came up to him and said—'spee-ak Engleesh.' The *employé* bowed in silence, whereupon the other came forward, and putting her face as near his as convenient, called out in a louder tone—'spee-ak Engleesh.' The *employé* bowed again; but after repeating the words in a still louder voice, one of them drew out the card of an hotel some hundred miles distant, touched her clothes, traced on the counter something like the shape of a portmanteau, then pointing to him, and then to the card, and made a motion as if writing; by all which symbols he understood her luggage had been left behind, and she wanted him to write for it. He was about to explain, hieroglyphically, his readiness to do so; when, after a moment's discourse with each other, the ladies retired, making signs that they would return again. Soon after he gave me this account, the good *employé* came back with a much lightened countenance, and told me he had found out a mode of relieving my 'compatriots' from their trouble. He had got the address of a 'Professor,' who would settle the whole matter; and with no little exultation, he drew out of his waistcoat pocket the card he was going to hand these poor ladies:—Monsieur l'Abbé ———, Rue ———. No. ——, will spike the English."

Such is the kind of light reading to be found in this rambling narration.

* "I have left these two words untranslated, because what we would politely term under-done, in French was boldly called 'quite bloody.'"

Bells and Pomegranates. No. VI. *Colombe's Birth-day.* By Robert Browning. Moxon.

Fertility of invention is a merit which Mr. Browning may claim, and must have allowed. Paracelsus, Pippa Passes, the Druses, the Dramatic Lyrics, a Blot in the 'Scutcheon, whatever may be their relative merits or demerits, have all essential differences; and the dramatic tale before us has its own distinctive character.

The story is a simple one. Five hours in the seventeenth century comprise the action—the day a lady's birthday—the lady, a great lady, Colombe Duchess of Juliers and Cleves—only twelve months a duchess: and now it seems menaced with the loss of her possessions by a counter-claimant Prince Berthold. In the corridor of the audience chamber are assembled a few vacillating and dispirited courtiers, wrangling among themselves which shall communicate to their young and fair mistress the news of her rival's instant coming. One Sir Guibert shows a touch of feeling, but it is but the courtier's touch, true cameleon-colours. Their disheartening parley is interrupted by a ruder voice—the voice of a man—a man of Cleves, bringing with him a memorial of the wrongs of his fellow-citizens, and a bold tongue to state them to their Lady Sovereign. But for Sir Guibert's gratitude for some old service, Valence, the Advocate, would not have gained admittance: the former, however, true courtier! will have instant payment for his assistance, and thrusts upon the bold suitor the paper announcing Prince Berthold's coming. Valence accepts the commission, not knowing its contents, and the party passes into the presence chamber.

Here, Colombe is disclosed; sad of mood, yet not cast down by the falling away of her flatterers. She can still comfort herself with some of the blessed assurances of youth—

> Well, sunshine's everywhere, and summer, too,
> Next year 'tis the old place again, perhaps,—
> The water-breeze again, the birds again!

She can rally her spirits, and receive with grace not only her courtiers, but also the pale earnest man,—first embarrassed by the momentous cause he has to plead, and then by the sudden apparition of such young and delicate beauty. In his embarrassment he puts the announcement of Prince Berthold's coming before the Cleves' memorial—presents it, and is terrified by its effect, though that be merely a melancholy and gentle reproach from the Duchess, too long-drawn, by the way, and fantastic for a moment of such surprise and emotion. We give its concluding words, merely to introduce the encounter which follows:—

[*After a pause*] Prince Berthold, who art Juliers' Duke, it seems—
The Pope's choice and the Emperor's, and the Kings'—
Be mine, too! Take this people! Tell not me
Of rescripts, precedents, authorities,
—But take them, from a heart that yearns to give!
Find out their love,—I could not; find their fear,—
I would not; find their like,—I never will
Among the flowers. (*Taking off her coronet*)
Colombe of Ravestein
Thanks God she is no longer Duchess here!
Valence. [*Advancing to Guibert.*] Sir Guibert—knight, they call you—this of mine
Is the first step I ever set at court.
You dared make me your instrument, I find;
For that, so sure as you and I are men,
We reckon to the utmost presently:
But as you are a courtier and I none,
Your knowledge may instruct me. I, already,
Have too far outraged, by my ignorance
Of courtier-ways, this lady to proceed
A second step and risk addressing her
—I am degraded—you let me address!
Out of her presence all is plain enough
What I shall do—but in her presence, too,
Surely there's something proper to be done!
[*To the others*] You gentles, tell me if I guess aright—
May I not strike this man to earth?
The Courtiers, [*as Guibert springs forward, withholding him.*] Let go!
—The Clothiers' spokesman, Guibert? Grace a churl?
The Duchess [*To Valence*] Oh, be acquainted with your party, sir!
He 's of the oldest lineage Juliers boasts;
A lion crests him for a cognizance;
'Scorning to waver'—that's his 'scutcheon's word;
His office with the new Duke—probably
The same in honour as with me; or more,
By so much as this gallant turn deserves;
He's now, I dare say, of a thousand times
The rank and influence that remain with her
Whose part you take! So, lest for taking it
You suffer....
Val. I may strike him then to earth?
Gui. [*falling on his knee*] Great and dear lady, pardon me! Hear once!
Believe me and be merciful—be just!
I could not bring myself to give that paper
Without a keener pang than I dared meet
—And so felt Clugnet here, and Maufroy here
—No one dared meet it. Protestation's cheap,—
But, if to die for you did any good,
[*To Gaucelme*] Would not I die, sir? Say your worst of me!
But it does no good, that's the mournful truth:
And since the hint of a resistance, even,
Would just precipitate, on you the first,
A speedier ruin—I shall not deny,
Saving myself indubitable pain,
I thought to get you pleasure, who might say?
In that your only subject we could find
To carry the sad notice, was the man
Precisely ignorant of its contents;
A nameless, mere provincial advocate;
One whom 'twas like you never saw before,
Never would see again. All has gone wrong;
But I meant right, God knows, and you, I trust!
The D. A nameless advocate, this gentleman!—
—(I pardon you, Sir Guibert!)
Gui. [*rising, to Valence*]—Sir, and you?—
Val. Rejoice that you are lightened of a load.
Now, you have only me to reckon with!
The D. One I have never seen, much less obliged!—
Val. Dare I speak, lady?
The D. Dare you! Heard you not
I rule no longer?
Val. Lady, if your rule
Were based alone on such a ground as these [*Pointing to the Courtiers*]
Could furnish you,—abjure it! They have hidden
A source of true dominion from your sight.
The D. You hear them—no such source is left....
Val. Hear Cleves!
Whose haggard craftsmen rose this day to starve,
Are starving now, and will lie down at night
Sure of a like to-morrow—but as sure
Of a most unlike morrow-after-that,
Since end things must, end howsoe'er things may.
What makes, instead of rising, all as one,
And teaching fingers [so expert to wield
Their tool] the broadsword's play or carbine's trick,
—What makes that there's an easier help, they think,
And you, whose name so few of them can spell,
Whose face scarce one for every hundred saw,
That you have simply to receive their wrongs,
And wrongs will vanish—so, still trades are plied,
And swords lie rusting, and myself stand here?
Will you derive your rule from such a ground,
Or rather hold it by the suffrage, say,
Of this—and this—and this?

The D. [*after a pause*] You come from Cleves—
How many are at Cleves of such a mind?
Val. [*from his paper*] "We, all the manufacturers of Cleves"—
The D. Or stay, sir—lest I seem too covetous—
Are you my subject? such as you describe
Am I to you—though to no other man?
Val. [*from his paper*] "Valence, ordained your Advocate at Cleves"—
The D. [*Replacing the coronet*] Then I remain Cleves' Duchess! Take your note.
While Cleves but yields one subject of this stamp,
I stand her Lady till she waves me off!
For her sake, all the Prince claims I withhold;
Laugh at each menace; and, his power defying,
Return his missive with its due contempt! [*casting it away.*]

The third act introduces to us the Prince-rival, Berthold, a man worn by ambition; impelled onwards in a career which has lost its animating excitement. He looks back oftener than a great statesman should, to a certain love-failure of his youthful days; and it is, perhaps, this tender memory, as much as the helplessness yet high-bearing of the gracious Colombe, that disposes him to approach her with the proposal of settling the contest of their claims by marriage. Ere this expedient, however, presents itself, the hard question of right has to be discussed. In the argument, the Duchess finds an eloquent advocate, as the following speech will show:—

Berthold. Suffer, through you, your subjects I demand,
Who controverts my claim to Juliers?
The Duchess. —Me,
You say you do not speak to—
Berth. Of your subjects
I ask then: whom do you accredit? Where
Stand those should answer?
Valence [*advancing*] The Lady is alone!
Berth. Alone, and thus? So weak and yet so bold?
Val. I said she was alone—
Berth. —And weak, I said.
Val. When is man strong until he feels alone?
It was some lonely strength at first be sure,
Created organs, such as those you seek,
By which to give its varied purpose shape—
And, naming the selected ministrants,
Took sword, and shield, and sceptre,—each, a man!
That strength performed its work and passed its way:
You see our Lady: there, the old shapes stand!
—A Marshal, Chamberlain, and Chancellor—
Be helped their way, into their death put life
And find advantage—so you counsel us!
But let strength feel alone, seek help itself,—
And as the inland-hatched sea-creature hunts
The sea's breast out,—as, littered 'mid the waves,
The desert-brute makes for the desert's joy,
—So, I am first her instinct fastens on;
And prompt I say so clear as heart can speak,
The People will not have you; nor shall have!
It is not merely I shall go bring Clevcs
And fight you to the last, though that does much,—
And men and children,—ay, and women too,
Fighting for home, are rather to be feared
Than mercenaries fighting for their pay—
But, say you beat us, since such things have been,
And, where this Juliers laughed, you set your foot
Upon a steaming bloody plash—what then?
Stand you the more our Lord as there you stand?
Lord it o'er troops whose force you concentrate,
A pillared flame whereto all ardours tend—
Lord it 'mongst priests whose schemes you amplify,
A cloud of smoke 'neath which all shadows brood—
But never, in this gentle spot of earth,
Can you become our Colombe, our play-queen,
Whom we, to furnish lilies for her hair,
Would pour our veins forth to enrich the soil!
—Our conqueror? Yes!—Our despot? Yes!—Our Duke? Know yourself, know us!

Well may the Duchess declare that such a speaker "has opened a new world to her;"—well may the mean-souled courtiers whisper in corners! We must pass rapidly on: Berthold's proposed compromise is laid before Colombe, by her advocate—who, loyal as he is, and indeed, as yet, hardly owning his secret feelings towards his liege's lady, states it fairly. In the statement, however, one point interests his client, which he dreamed not of—the Duchess toys with the idea of retaining Juliers and Cleves—but the woman spies out his secret: makes him unfold it too clearly for disguise: flatters him with brilliant hopes, and then, like a true daughter of Eve, turns him over to the rack of suspense, unable herself to decide betwixt power and love. A superficial observer would have overlooked this natural struggle, a feeble-handed writer hesitated to show the play of light and shade in the character of his heroine; but Mr. Browning has done it, and skilfully, so that we continue to love and to trust in Colombe; and, none the less, because she vacillates.

Evening comes, and the time of decision with it. Berthold, having prepared the lady, repeats his offer earnestly: the day spent within her influence has made him less ambitious by many a treaty. He has grown warm and lover-like. With so natural a solution the result seems sure, and the poor Advocate must break loose from the dream woven round him by the lady's condescension:—

Melchior. You have heard
His offer to your Lady?
Valence. Yes!
Mel. Conceive
Her joy thereat?—
Val. I cannot!
Mel. No one can!
All draws to a conclusion, therefore.
Val. [*Aside.*] So!
No after-judgment—no first thought revised—
Her first and last decision!—me, she leaves—
Takes him—a simple heart is flung aside.
The ermine o'er a heartless breast embraced!
Oh Heaven, this mockery has been played too oft!
Once, to surprise the angels—twice, that fiends
Might record, hug themselves they chose not so—
Thrice, many thousand times, to teach the world
All men should pause, misdoubt their strength, since men
Could have the chance yet fail so signally,
—But ever—ever—this farewell to heaven,
Welcome to earth—this taking death for life—
This spurning love and kneeling to the world—
Oh Heaven, it is too often and too old!

But there is strength even in suffering for hearts like Valence's; he finds consolation in his own unselfish and loyal thoughts; he can take his leave without the meanness of reproach:

Valence. Who thought upon reward? And yet how much
Comes after—Oh what amplest recompence!
Is the knowledge of her, nought? the memory, nought?
—Lady, should such an one have looked on you,
Ne'er wrong yourself so far as quote the world,
And say, love can go unrequited here!
You will have blessed him to his whole life's end—
Low passions hindered, baser cares kept back,
All goodness cherished where you dwelt—and dwell.
What would he have? He has you—you, the form,
And you, the mind, where self-love made such room
For love of you, he would not serve you now
The vulgar way,—repulse your enemies,
Win you new realms, or best in saving you
Die blissfully—that's past so long ago!
He wishes you no need, thought, care of him—
Your good, by any means, himself unseen.
Away, forgotten,—he gives that life's task up,
As it were....but this charge which I return—
[*Offers the Requisition, which she takes.*
Wishing your good!
The Duchess. [*Having subscribed it*] And opportunely, sir—
Since at a birthday's close, like this of mine,
Good wishes gentle deeds reciprocate.
Most on a wedding day, as mine is too,
Should gifts go forward: yours comes first by right.
Ask of me!
Berthold. He shall have whate'er he asks,
For his sake and for yours!
Val. [*Aside*] If I should ask—
The withered bunch of flowers she wears—perhaps,
One last touch of....
[*After a pause, presenting his paper to the Prince.*
Redress the wrongs of Cleves!
Berth. I will, sir!
The Duchess. [*As Valence prepares to retire*]—Nay, do out your duty, first!
You bore this paper: I have registered
My answer to it: read it and have done! [*Valence reads it.*
—I take him—give up Juliers, and the world!
This is my Birth-day.

So ends this drama: beautiful in the lofty and chivalrous spirit it illustrates, in the noble lesson it teaches, and in the rich and poetical eloquence of its language, in which Mr. Browning has advanced many steps nearer to simplicity, without his fancy, or feeling, or stores of imagery showing a trace of impoverishment.

Memoirs of Eminent Englishwomen. By Louisa Stuart Costello. Vols. III. and IV.
[Second Notice.]

Margaret of Newcastle is succeeded by another poetess, Anne Countess of Winchelsea,—but certainly does not make all the figure in Miss Costello's gallery of illustrious Englishwomen to which she is entitled. Anne of Winchelsea is the *Ardelia* of Pope; and has had her titles to such praise as he bestowed confirmed in later times. Yet something less than two of Miss Costello's pages include all which that lady has to tell of her, with one of Pope's poetical tributes and a specimen of the Countess's own muse besides. If the verses which Miss Costello has quoted had been a sample of the poetess's best, the few lines of memoir given by her might have been considered as much as the subject deserved,—but the countess has left that behind her which both offered a better selection and merited a more extended comment.

The next of our author's worthies is Mrs. Katherine Philips,—a lady who died at the age of thirty-one, yet in her short career took tribute from the pens of many of the wits and poets of the time, under the poetical name of *Orinda*. Cowley, Rowe, Roscommon, Orrery and Denham are all eulogists of the "matchless Orinda." It speaks still more for her, that she was the friend of Jeremy Taylor; yet we agree with Miss Costello, that neither her poems nor her letters justify the high-flown encomiums which her contemporaries bestowed. She was, however, sufficiently remarkable, by the notice she attracted amongst remarkable men, to demand some place in a collection like this.

Jane Lane, the sister of Colonel Lane, of Bentley Hall, in Staffordshire, was one of those heroines to whose devotion, in the course of his disastrous fortunes, Charles the Second owed so much,—a debt which he paid in the cases of the individuals with neglect, and of the sex in general by lowering its standard to the level of the harem. If ever there was a monarch who had reason to know of what high and generous qualities a woman's heart is made, it was this selfish and profligate man; and perhaps a lenient view of the matter may attribute some portion of his passion for the sex to the deep sense of all he owed to its ministrations, taking such forms as his low and worthless nature could suggest. Jane Lane seems to have been more fortunate than others of the devoted women who risked life and fame for his service. Her reception in France, as the heroine of a story so romantic, was enthusiastic; the exiled family went forth to meet her and her brother on the road to Paris; Charles afterwards conferred on her a pension of 1000*l.* a year,—giving one of half that amount to her brother; and she became the honoured wife of Sir Clement Fisher, of Packington, a staunch adherent of his royal house. The incidents of the escape are well known; but Miss Costello misses one of the most critical, in which the king narrowly escaped detection, from the professional skill of the blacksmith, which pronounced that his horse had been shod in the West, when the disguised monarch asserted that he and it had travelled from the North.

Anne Killigrew—poet and painter—"a grace for beauty and a muse for wit," according to the description of Anthony Wood—who died, like Katherine Philips, of the small-pox, but at the still earlier age of 25,—is well known to posterity by Dryden's Ode to her memory; and Miss Costello has been content to repeat that information to her readers. Of nine pages of memoir six are occupied with this reprint;—the rest contain a mere date or two.—Frances Jennings, Duchess of Tyrconnel and sister of the notorious Sarah Duchess of Marlborough, is celebrated in the memoirs of Count Anthony Hamilton for the silly things she did, and the grace with which she did them. She was no particular exception to the manners of the court to which she belonged,—but she was one of those whose reputation was not substantially impeached. We never heard of any title which she had to eminence,—and Miss Costello produces none.—Mary Beale was a portrait-painter, of the school of Sir Peter Lely,—much employed in her day, but of whom there is little to tell. One record, however, deserves putting down, and makes of her a worthy. She and her husband "made a

point of bestowing two shillings in the pound, out of their gains, on the poor."—Anne Clarges, Duchess of Albemarle, was the low-bred, coarse, violent wife of the celebrated General Monk,—whom she influenced by her natural shrewdness and ungovernable temper. Her counsels are supposed to have had no inconsiderable share in bringing about the Restoration. Pepys speaks of her, after that event, in the following terms, "The Duke," he says, "has sorry company; dirty dishes, bad meat, and a nasty wife at table." The vehemence of her demonstrations may be judged from the following passage, quoted by Miss Costello:—

"Dr. Price, who was a chaplain of General Monk, speaks thus relative to his wife:—'His wife had in some degree prepared him to appear when the first opportunity should be offered, for her custom was, when the general's and her own work and the day were ended, to come into the dining-room in her *treason-gown*, as I called it, I telling him when she had that gown on, he should allow her to say anything. And indeed her tongue was her own then, and she would not spare it: insomuch that I, who still chose to give my attendance at those hours, have often shut the dining-room doors, and charged the servants to stand without till they were called in.'"

It is difficult to understand the law of proportion which assigns about three pages to this clever virago, and two hundred and thirty to a very kindred spirit, the torment of another great and simple-minded soldier,—Sarah Duchess of Marlborough.

Lady Mary Tudor was the daughter of Mary Davis,—a rival of the more notorious Nell Gwynn on the stage and in the affections of Charles the Second,—and married Sir Francis Radcliffe, who became Earl of Derwentwater. This is all!—surely not enough to give her a place among female worthies! She was very pretty, if her picture copied by Miss Costello from the original in Hindon House, represent her faithfully. The misfortunes of her sons, who perished in the subsequent rebellions, is a title to our sympathy; but we must nevertheless remonstrate against that species of book-making which borrows a factitious interest to build up an imputed eminence, and ekes out a blank history by importing into it incidents the most familiar drawn from the fortunes of the next generation—reprinting such documents as Lord Derwentwater's speech on the scaffold.—Anne Hyde, the wife of James, Duke of York, is an eminent historical name, by several titles. First, she was the daughter of the great Chancellor Clarendon; and secondly, her personal qualities purchased for her an English crown—which death, nevertheless, snatched from her ere it descended on her head, and which she must have lost by a heavier calamity some years later, had she lived to wear it. As the last subject, and the first since Henry the Eighth, who aspired to wear the crown-conjugal, her fortunes are sufficiently remarkable to deserve a place in a collection of eminent women: had she lived longer, there is but too much reason to suppose that she would have earned a more positive and melancholy reputation, as a moving cause of those misfortunes which, in the person of her unhappy husband, came down upon his doomed house.

To these narratives, if so they can be called, succeeds the oft-told tale of Stella and Vanessa—Esther Johnson and Esther Vanhomrigh—made immortal by their connexion with Swift, and objects of interest and sympathy by the strangeness of its character and their unhappy fate. We hope this is the last time we shall find a lady meddling with the subject. Both Mrs. Jameson and Miss Costello must have discovered, in the course of their labours, that the theme was a very difficult one for their handling,—and it is more so than they know. Miss Costello's work has been done principally with the scissors: but here and there, she ventures to speculate—quite beside the mark; and indulges in much vituperation,—far exceeded, nevertheless, in that article by Mrs. Jameson,—something of which both would have abated, no doubt, if that dark page in the history of the unhappy Swift had been fully revealed. It is a relief to turn from the subject, to the concluding memoir of the volume—that of Susannah Centlivre—whose place amongst the dramatists of the country gives her an indisputable title to rank amongst eminent Englishwomen.

The Fourth volume is wholly devoted to the lives of Sarah Duchess of Marlborough and Lady Mary Wortley Montagu,—both women remarkable enough to claim a place in any collection of distinguished British females. The former of these was, as Miss Costello observes, the most remarkable woman of her own age,—but when the writer adds of any age, our consent stays a long way behind her panegyric. It is much Miss Costello's habit to become the very partial advocate of the subjects of her memoirs,—as if she had contracted an obligation to maintain their characters by summoning them into the field of criticism. This is an error not uncommon to biographers, and which we have heard defended—but on no just ground, if biography is to be read as history at all. Whilst there are certain dramatic properties neglected by our author, which she might adopt with advantage to her narratives, this is one which will not bear applying to the case of serious narration. But Miss Costello's practice in that respect goes, at times, even beyond the licence advocated—leading her not only to enhance, or give undue prominence to, such qualities as her heroines really possessed, but even to *suppose* in their favour others of which there is no evidence, or against presumption. It is amusing to see, too, what very small and insignificant tribute of this kind she is contented to take on behalf of the well-beloved of her imagination. "The very unintellectual manner," she says, "in which her (Sarah Jennings's) time was spent at court seems not a little to have perturbed a spirit so exalted and so ready for active exertion as her own:—*as she must have excelled in all things, she was, doubtless, a consummate card-player!* but it galled her to record that she 'never read, nor employed her time in anything but playing cards,'—although she adds, at the same time, that she had not then 'any ambition.'" Miss Costello labours hard to elevate her subject into a woman of first-rate genius; and will, at the same time, by no means allow, if she can help it, that she was the sordid, violent and thoroughly disagreeable being which all the witnesses and all the facts report her to have been. Undoubtedly a shrewd, clever, self-willed woman, she had that boldness of temper and promptness of action which sometimes pass for energy of mind; but her genius, such as it was, grew up and developed itself wholly in the school of intrigue,—which has rarely produced the disciples that philosophic history accepts for its heroes. Even her political "cards," considering the great hand which circumstances dealt to her, she played badly; and was beaten at her own game by a bed-chamber-woman, who had learnt it by looking over her shoulder. She lost her greatness by her utter incapacity for managing that temper, whose early and long continued influence over a weak princess had first contributed to it. The biographer betrays a consciousness of the real quality of her heroine's genius, by her attempts to raise suppositions of a higher kind in its favour. "What the wish" says she,—speaking of Lord Churchill's desire to retire into private life, soon after their marriage—" of his young, beautiful and ambitious wife might be, at this juncture, does not appear; for, with her sagacity, it does not seem unlikely that she foresaw the probability of her friend and companion, the princess Anne, becoming hereafter the object of her country's hope." It would have required a supernatural power of prevision to see anything of the kind, at the period spoken of,—for the shadow of that coming event was then nowhere in the visible world. Prophecy alone could have reached it; but supposing Miss Costello to have established this ultra-gift for her heroine, at what an expense of character is it conferred! It would be actually painful to contemplate this young wife, brought up under the roof of the wretched Duke of York, and, both in her own and her husband's person, indebted to his unwearying friendship for favours the most important and engaging, scenting, at this far distance, the decline of her unhappy patron's fortunes, and calculating in cold blood her place by the side of his successor, in a combination which made it a bitter and revolting part of the prince's well-earned punishment that it was dealt to him through the hands of his own children. Indeed, without imputing any such ghastly cleverness as this, history has never altogether excused either the duchess or her nobler husband, under their peculiar obligations, for their desertion of their constant patron,—even when high and pressing motives had arisen to operate against the sacred law of gratitude.

There is something amusing, even to the verge of the ridiculous,—read in the light of the duchess's entire character and conduct,—in a novel species of coquetry played off by her, on the occasion of her husband being created a duke,—and in the success with which she imposes even on her biographer this version of a *nolo episcopari*. The great woman is thus addressed by her humble friend, the Queen, on the occasion:—

"St. James's, 22nd October.

"I have had this evening the satisfaction of my dear Mrs. Freeman's of yesterday; for which I give you many thanks; and, though I think it a long time since I saw you, I do not desire you to come one minute sooner to town than it is easy for you, but will wait with patience for the happy hour; and only beg, when you do come, you would send for a coach, and not make use of a chaise. Lord Treasurer intends to send you a copy of the address of the House of Lords, which is to be given me to-morrow; and that gives me an opportunity of mentioning a thing which I did not intend to do yet. It is very uneasy to your poor unfortunate faithful Morley to think that she has so very little in her power to show you how sensible I am of all Lord Marlborough's kindness, especially when he deserved all that a rich crown could give; but, since there is nothing else at this time, *I hope you will give me leave*, as soon as he comes, to make him a duke. I know my dear Mrs. Freeman does not care for anything of that kind; nor am I satisfied with it, because it does not enough express the value I have for Mr. Freeman, nor ever can how passionately I am your's, my dear Mrs. Freeman."

"'Ambition,' says the duchess, 'had no share in procuring that new title.' And we are bound to credit her assertions; for, in a letter to a friend, she remarks:—'I believe there are very few in the world who do not think me very much pleased with the increase of honour the Queen gave Lord Marlborough when he commanded the army, at her coming to the crown: and perhaps it is so ridiculous, at least what few people will believe, that I would not mention it but to those that I could show the original letters to. If there be any truth in a mortal, it was so uneasy to me, that, when I read the letter first upon it, I let it drop out of my hand, and was for some minutes like one who had received news of the death of one of their dear friends; I was so sorry for anything of that kind, having before all that was of any use. I fear you will think what I say upon the subject is affected; and therefore I must repeat again, that it is more uneasy to me for a time than can easily be believed. I do think there is no advantage but in going in at a door; and, when a rule is settled, I like as well to follow five hundred as one.'"

As if that *first going in at a door* were not the

object for which she struggled, and jostled, and fussed, and *swore* through half her life! When she lost her influence irrecoverably, through straining it too far, like other great people of her class, she persuaded herself that she saw at last into the philosophy of the matter:—

"After what has passed, I do solemnly protest, that if it were in my power I would not be a favourite, which few will believe; and since I shall never be able to give any demonstration of that truth, I had as good say no more of it. But as fond as people are of power, I fancy that anybody that had been shut up so many tedious hours as I have been with a person that had no conversation, and yet must be treated with respect, would feel something of what I did, and be very glad, when their circumstances did not want it, to be freed from such a slavery."

The two several characters put on record by the duchess Sarah of her Royal mistress, at two several times, should be, we think, decisive of the character of the duchess's own mind:—

"Queen Anne had a person very graceful and majestic: she was religious without affectation, and always meant well. Though she believed that King James had followed such counsel as endangered the religion and laws of her country, it was a great affliction to her to be forced to act against him even for security. Her journey to Nottingham was never concerted, but occasioned by the sudden great apprehensions she was under when the King returned from Salisbury. That she was free from ambition appeared from her easiness in letting King William be placed before her in the succession; which she thought more for her honour than to dispute who should wear first that crown that was taken from her father. That she was free from pride appeared from her never insisting upon any one circumstance of grandeur, more than when her family was established by King Charles the Second: though after the Revolution, she was presumptive heir to the crown, and after the death of her sister was in the place of a Prince of Wales. Upon her accession to the throne the Civil List was not increased, although that revenue, from accidents, and from avoiding too rigorous exactions (as the Lord Treasurer Godolphin often said) did not, one year with another, produce more than one hundred thousand pounds. Yet she paid many pensions granted in former reigns, which have since been thrown upon the public. When a war was found necessary to secure Europe from the power of France, she contributed, for the ease of the people, in one year, out of her own revenue, a hundred thousand pounds. She gave likewise the first fruits to augment the provisions of the poorer clergy. For her own privy purse she allowed but twenty thousand pounds a year, (till a very few years before she died, when it was increased to six-and-twenty thousand pounds,) which is much to her honour, because that is subject to no account. She was as frugal in another office, (which was likewise her private concern,) that of the robes, for in nine years she spent only thirty-two thousand and fifty pounds, including the coronation expense, as appears by the records in the Exchequer, where the accounts were passed. She had never any expense of ostentation or vanity; but never refused charity when there was any reason for it. She always paid the greatest respect imaginable to King William and Queen Mary. She was extremely well bred; treated her chief ladies and servants as if they had been her equals. To all who approached her, her behaviour, decent and dignified, showed condescension without art or manners, and maintained subordination without servility."

Look upon this picture, and *on this*:—

"Queen Anne had a person and appearance not at all ungraceful till she grew exceedingly gross and corpulent. There was something of majesty in her look, but mixed with a sullen and constant frown, that plainly betrayed a gloominess of soul, and a cloudiness of disposition within. She seemed to inherit a good deal of her father's moroseness, which naturally produced in her the same sort of stubborn positiveness in many cases, both ordinary and extraordinary, as well as the same sort of bigotry in religion. Her memory was extremely great, almost to a wonder, and had these two peculiarities very remarkable in it,—that she could, whenever she pleased, forget what others would have thought themselves obliged by truth and honour to remember, and remember all such things as others would think it a happiness to forget. * * She never discovered any readiness of parts, either in asking questions or in giving answers. In matters of ordinary moment, her discourse had nothing of brightness or wit; and, in weightier matters, she never spoke but in a hurry, and had a certain knack of sticking to what had been dictated to her, to a degree often very disagreeable, and without the least sign of understanding or judgment. * * Her civility and good manners in conversation (to which the education of great persons naturally leads) were general enough, till in her latter days her new friends untaught her these accomplishments, and then her whole deportment was visibly changed to that degree, that when some things disagreeable to her own honour or passion have been laid before her, she would descend to the lowest and most shocking forms of contradiction [this from duchess Sarah!], and what, in any of meaner station, would have been esteemed the height of unpoliteness. Her friendships were flames of extravagant passion, ending in indifference or aversion. Her love to the prince seemed, in the eye of the world, to be prodigiously great; and great as was the passion of her grief, her stomach was greater; for, that very day he died, she eat three very large and hearty meals; so that one would think that, as other persons' grief takes away their appetites, her appetite took away her grief. * * Her religion was chiefly implicit faith and subjection, accompanied with the form and course of a sort of piety. * * But if religion be justice, truth, sincerity, honour, and gratitude, or the like, then one cannot tell what to say: but let her practice speak for herself, her broken vows, her violated alliances, her behaviour whether to her old friends at home, her conduct to her good allies abroad, or the returns she made to her native country for an immense treasure of money and blood spent for the vindication of her title and the security of her life. * * She loved fawning and adoration, and hated plain dealing, even in the most important cases. She had a soul that nothing could so effectually move as flattery or fear. * * She had no native generosity of temper, nor was often known of herself to do a handsome action, either as a reward or as a piece of friendship. The diligence and faithfulness of a servant signified but little with her, where she had no passion for the person. Nor did she hardly ever think, either of rewarding any because they were deserving, or of raising any because they were miserable, till such things were urged upon her by those whom she loved. And even to those whom she professed to love, her presents were very few, and generally very insignificant, as fruit, venison, or the like, unless in cases where she was directed by precedents in the former reigns. In a word, she had little zeal for the happiness of others, but a selfishness that was great enough to make every other consideration yield to it. She was headstrong and positive in matters of the utmost importance, and at last preferred her own humour and passion before the safety and happiness of her own people and of all Europe, which she had either not sense enough to see or not goodness enough to regard."

The spirit of intrigue, which made the duchess enemies abroad, likewise imbittered her home, and was a constant cause of disturbance to her husband,—in whose character there was much of a noble simplicity. This strong-minded woman, as her biographer thinks her, gave way to fits of passion, at home, of which a child should have been ashamed; as, abroad, she played for toys, and "called" the baubles "names," and "made faces" at them, when she chanced to break them. A worthy instance is the story related by herself to Lady Mary Wortley Montagu, of her having, in a fit of anger, cut off the luxuriant tresses which were her husband's pride, with the respectable view of vexing him who was the cause of her ill-humour,—and placing them conspicuously in an antechamber, where they could not fail to be seen by the duke. The sequel is touching:—

"Shortly afterwards, meeting him, and observing in his manner no appearance of vexation or perturbation, she imagined that her scheme had failed, and seeking for the ringlets without effect, she was ashamed to say anything on the subject, surprised though she was to find they had disappeared. With tears of grateful tenderness she concluded her story by recounting that, after Marlborough's death, the missing treasure was found by her in a secret cabinet belonging to him, where all that he most prized was secured."

Two anecdotes related by Miss Costello, and falling on the same open leaf of her volume, exhibit such a conspicuous contrast in the dispositions of the lady and her lord, that it seems strange how elements so opposite ever combined in marriage:—

"Dr. Mead, the celebrated physician, had given some advice which she did not approve; upon which she attacked him furiously, *swore* at him with a bitterness quite indescribable, and followed him, as he retreated from her room, with the intention of *pulling off his periwig!* Dr. Hoadley, Bishop of Winchester, is said to have been a witness of this indecorous scene."

The anecdote of the duke is well known:—

"Riding one day with Mr. Commissary Mariot, the duke was overtaken by a shower of rain. The commissary called for and obtained his cloak from his servant, who was on horseback behind him. The duke also asked for his cloak several times, but without avail, his servant delaying to bring it; when at length he came, he was awkwardly endeavouring to fasten it, and muttered sulkily, 'You must stay, if it rains cats and dogs, till I get at it.' The duke, instead of getting angry, turned to the commissary and remarked, 'I would not be of that fellow's temper for the world.'"

We have left ourselves but little space to deal with the memoir of Lady Mary Wortley Montagu, which is the concluding one of the series,—a matter of the less consequence, since there is no dry place for critic or biographer to put his foot on in the life of the whimsical and eccentric Lady Mary. A somewhat perplexed and perplexing book it is—but has been very generally read. Miss Costello brings no new materials; and all the old materials of Lady Mary's history are familiarly known, and have been widely canvassed. All that relates to her separation from her husband and her quarrel with Pope, is beaten ground. With faults and virtues, talents and weaknesses that were continually belying one another, she has a title to the world's gratitude that should make her name immortal. All the errors of her wayward spirit, which have begotten so many puzzles for her biographers, all the weaknesses of a vain and capricious temper, fade into forgetfulness in view of the inestimable benefits which her strong sense, enlightened courage, and generous perseverance secured to Europe in the practice of inoculation. It is, says Sir Richard Steele, "a good so lasting and so vast, that none of those wide endowments and deep foundations of public charity which have made most noise in the world deserve to be compared with it."—"Who amongst us," says Mrs. Jameson, "has thought of raising a public statue to Lady Wortley Montagu?—to her who has almost banished from the world that pest which once extinguished families and desolated provinces! * * She ought to stand in marble beside Howard the good!" The first hint to the European public of that remedy which she had the acuteness at once to distinguish from empiricism, in a country where empiricism would have been suspected by minds of a less order, is contained in the following letter to a friend from Adrianople:—

"Those dreadful stories you have heard of the *plague* have very little foundation in truth. I own I have much ado to reconcile myself to the sound of a word which has always given me such terrible ideas, though I am convinced there is little more in it than in a fever. As a proof of this, let me tell you that we passed through two or three towns most violently infected. In the very next house where we lay (in one of those places) two persons died of it. Luckily

for me, I was so well deceived that I knew nothing of the matter; and I was made believe that our second cook had only a great cold. However, we left our doctor to take care of him, and yesterday they both arrived here in good health; and I am now let into the secret that he has had the *plague*. There are many that escape it; neither is the air ever infected. I am persuaded that it would be as easy a matter to root it out here as out of Italy and France; but it does so little mischief, they are not very solicitous about it, and are content to suffer this distemper instead of our variety, which they are utterly unacquainted with. *Apropos* of distempers, I am going to tell you a thing that will make you wish yourself here. The small-pox, so fatal, and so general amongst us, is here entirely harmless by the invention of *ingrafting*, which is the term they give it. There is a set of old women who make it their business to perform the operation every autumn, in the month of September, when the great heat is abated. People send to one another to know if any of their family has a mind to have the small-pox: they make parties for this purpose, and when they are met (commonly fifteen or sixteen together), the old woman comes with a nut-shell full of the matter of the best sort of small-pox, and asks what vein you please to have opened. She immediately rips open that you offer to her with a large needle (which gives you no more pain than a common scratch), and puts into the vein as much matter as can lie upon the head of her needle, and after that binds up the little wound with a hollow bit of shell; and in this manner opens four or five veins. The Grecians have commonly the superstition of opening one in the middle of the forehead, one in each arm, and one in the breast, to mark the sign of the cross; but this has a very ill effect, all these wounds leaving little scars, and is not done by those that are not superstitious, who choose to have them in the legs, or that part of the arm that is concealed. The children or young patients play together all the rest of the day, and are in perfect health to the eighth. Then the fever begins to seize them, and they keep their beds two days, very seldom three. They have very rarely above twenty or thirty in their faces, which never mark; and in eight days' time they are as well as before their illness. Where they are wounded, there remain running sores during the distemper, which I don't doubt is a great relief to it. Every year thousands undergo this operation; and the French embassador says pleasantly, that they take the small-pox here by way of diversion, as they take the waters in other countries. There is no example of any one that has died in it; and you may believe I am well satisfied of the safety of this experiment, since I intend to try it on my dear little son. I am patriot enough to take pains to bring this useful invention into fashion in England; and I should not fail to write to some of our doctors very particularly about it, if I knew any one of them that I thought had virtue enough to destroy such a considerable branch of their revenue for the good of mankind. But that distemper is too beneficial to them not to expose to all their resentment the hardy wight that should undertake to put an end to it. Perhaps, if I live to return, I may, however, have courage to war with them."

The courage which dared the trial on her own children, and the perseverance which battled with popular and professional prejudice to procure its acceptance by her countrymen, make her one of the most illustrious Englishwomen whom Miss Costello has placed on her records; and this memoir is, in every way, one of the most interesting and best managed in the volumes.

In conclusion, we will repeat the wish which we expressed when noticing Miss Costello's former volumes—that she would, in any future ones, adopt a higher principle for the selection of her subjects, and in their treatment aim at something like style. If she hopes life for her book, she must give to her matter something of a less patchy form; so that an uninformed reader may come to it for a complete narrative, not find himself referred to other sources for the connecting line on which to string her scraps. Where she has no fresh fact to offer, she should at least offer (what we know she has the power to give) grace of manner,—as a reason why any reader should exchange the "old lamps" for her "new."

List of New Books.—Histoire de France, par M. Fleury, new edit., for Schools, edited by J. Christison, 12mo. 3s. 6d. cl.—Alison's (M. A.) First Lessons in English Grammar, 6th edit., 18mo. 9d. swd., 1s. cl.—Laodicea, or Religious Declension, an Essay, by David Edward Ford, 18mo. 1s. 6d. cl.—Swinborne's Bailiffs' Account Book, folio, 6s. 6d. hf-bd.—Dr. Jelf's Bampton Lectures for 1844, 8vo. 10s. 6d. cl.—On the Collection and Recovery of Rent Charge, with Forms of Proceedings, &c., by M. C. Jones, Solicitor, 12mo. 4s. 6d. cl.—Wilson's (Rev. P.) Consolations and Prayers for the Time of Sickness, 32mo. 2s. 6d. cl.—Paterson's Concise System of Theology on the Basis of the Shorter Catechism, 18mo. 3s. cl.—Plain Discourses to a Country Congregation, by the Rev. W. Butcher, M.A., 12mo. 3s. 6d. cl.—Englishman's Library, Vol. XXVII. 'Wilberforce's American Church,' 12mo. 6s. cl.—The Foundations of Spiritual Life, by F. Surin, edited by Pusey, 12mo. 4s. 6d. cl.—A History of England, by the Rev. G. A. Poole, M.A. Vol. I., 12mo. 4s. 6d. cl.—Elements of Sacred Truth for the Young, by Abercrombie, Part I., 18mo. 1s. 6d. cl.—Montgomery's Law of Kindness, with Address to English Readers, 18mo. 3s. cl.—The History of Literature, by Sir William Boyd, Vol. II., 8vo. 9s. cl.—Poems, by John Nicholson, the Airedale Poet, with Life, by John James, post 8vo. 6s. cl.—Foreign Library, Vol. IX. 'History of the Nineteenth Century,' by F. C. Schlosser, Vol. III. 8vo. 11s. cl. cl.—Bluck's Picturesque Guide to the English Lakes, 2nd edit. fc. 5s. cl.—Strickland's Edward Evelyn, reduced edit., fc. 8vo. 2 plates, 2s. 6d. cl.—Taylor's History of France, 3rd edit., 12mo. 6s. roan.—Grantham's Facts and Observations in Medicine and Surgery, 8vo. 7s. 6d. cl.—Dr. Carpenter's Human Physiology, 2nd edit. 8vo. 1l. cl.—Cicero de Officiis, Cato Major, &c. 3rd edit. with English Notes, 12mo. 4s. 6d. cl.—Whittaker's Latin Exercises, 12th edit., revised, &c., 12mo. 3s. cl.—Thierry's Historical Works, &c., large 8vo. 12s. 6d. cl.; ditto, Merovingian Narratives, &c., large 8vo. 4s. 6d. swd.—Barnes's Inquiry into the Apostolic Church, 18mo. 2s. cl.—The Musical Treasury, folio, 16s. hf-bd.—Thomas Dibdin's Songs, 24mo. 5s. cl.—Hand-book of Phrenology, 3rd edit., 1s. swd.—The Maid of Honour, or the Massacre of St. Bartholomew, with Illustrations, fc. 8vo. 7s. cl.—Undine, from the German of Fouqué, in an illuminated cover, imperial 32mo. 1s. swd.—Chromo-Graphic and Drawing Room Almanac, 1845, 1s. on a Card.—Nina, by Miss Bremer, Vol. I., imp. 32mo. 2s. swd.—Courts of Request, their Jurisdiction and Powers, by D. D. Keane, Esq., Barrister, 12mo. 2s. 6d. bds.—The Complete Suffrage Almanac, for 1845, 12mo. 6d. swd.

FOREIGN CORRESPONDENCE.

Naples, September.

You will be glad to hear that the attention of the Italians is much directed to historical studies. Not content with researches already made, others are being pursued, in order to place in a stronger light facts as yet not sufficiently well known, and those portions of the customs of the people deserving more particular attention. Perhaps nothing is calculated so powerfully to accomplish this object as the perusal of the chroniclers of a country, who narrate many and minute details which history neglects. If to these be added writers of a better judgment, who were contemporaries or nearly so of the facts they relate, we shall have the true elements of historical knowledge. Such is the character of a work publishing here, entitled 'Neapolitan Chroniclers and Contemporary Writers, edited and inedited, with Introductory Discourses,' &c., a work which, if it fulfil the promise given by its earlier volumes, will be of infinite value in the completion of the history of a kingdom so distinguished by its varied fortunes, and, more or less remotely, so mixed up with the history of the older European states. It is to be hoped that Signore del Re, who is assisted by the first talent of the kingdom, will meet with every support in his patriotic undertaking. Not less interesting is the history of 'The Genoese in Galata,' by Cavaliere Sauli, of Turin, and that of 'The Arabs in Italy,' by Signor Bertolotti. At the foot of the beautiful hills which rise opposite to Constantinople lies Galata, between Europe and Asia. Colonized by the Genoese, it served these adventurous mariners as a mart of commerce, and gave them an influence in the Eastern Empire which continued to be felt till it fell under the dominion of the Turks. It is of the grand events attending this terrible catastrophe that Sauli writes. His style is good and energetic. To obtain his object, he seems to merge mere national interests in the great interests of humanity; and whilst he desires that Italy should take a part in the influence which other European states exercise on the civilization of Constantinople, he seems to forget that, divided and weakened, his country is deficient in that union and energy which are necessary to the completion of so great an object.

The work of Bertolotti, entitled 'The Arabs in Italy,' though from a pen usually employed in romance and poetry, is a proof that such pursuits are not incompatible with severer studies. Whilst in Asia the Arabs were preparing the people for their future regeneration, they were awakening a more vigorous spirit and a new order of things in Sicily. There arose a great number of distinguished Arabo-Sicilians. Their genius adapted to the wants and the character of their nation the learning of those amongst whom they had settled, and under the united influence of the Arabian and Sicilian spirit a literature was formed equally distinguished by its brilliancy and profundity: philosophy, astronomy, and arithmetic were especially cultivated. At the moment in which the Arabs laid waste Italy, the Fine Arts began to appear and to develope themselves for the service of the Christian religion. The poetry and the architecture of the Middle Ages derived their character from the Arabs. The Normans, who wrested from them the empire of Sicily, profited by their genius, and hence the poetry and romances of the earlier writers of Italy have an Oriental tint. The work of Bertolotti tends to show that the Arabs really exercised a greater influence on the literature of Italy than is usually credited, and that, following the opinion of Petrarch, even its poetry was more indebted to these Eastern conquerors than to the Troubadours of Provence. Be this as it may, these volumes, as well of Sauli as of Bertolotti, are proofs that the Italians of the present day are occupying themselves with success in the severer studies of history; and it is well that they do so, for thus I trust they may silently be forming that national spirit and laying the foundation of that national union, which would render the most beautiful and most interesting at once the richest and happiest state of Europe.

I have lately seen the Statistical Tables of the Population of Rome for the year 1842, signed by Monsignore Zacchia, the present able governor, which, under various points of view, are deserving attention. The following is a summary:—

Families.	Individuals.	Sex.	Country.
34,449	167,121	{ 88,442 males. 78,679 females.	151,424 Romans. 15,697 Foreigners.

Occupations.

Cardinals	30
Archbishops and Bishops	21
Prelates	125
Secular Clergy	1,654
Monks	2,749
Nuns	1,550
Nobles and Proprietors	2,652
Professors of Science and Literature	2,158
Those who profess the Fine Arts	1,522
Physicians	213
Surgeons	183
Druggists	71
Assistants to Druggists	113
Midwives	62
Masters of Public Schools	302
Public Employés and Pensioners	3,733
Private Employés and Pensioners	2,622
Shopkeepers and Tradesmen	37,202
Servants	12,128
Labourers and Workpeople in the different Suburbs	15,158
Labourers on Public Works and Beggars	1,913
Youths and individuals of both sexes without any fixed condition	81,230

Individuals comprising the military force, and those who are confined in prison, are not enumerated.

Births, Males	2,110
— Females	1,933
Deaths, Males	1,809
— Females	1,779
Marriages	1,313

Proportion of

Births, to the population,	1 in 41
Deaths	1 — 47
Marriages	1 — 127

Thus we find that upwards of 3,600 individuals are devoted to the cultivation of literature and the Fine Arts. Those who are engaged in public works and beggars are estimated at 1,913, under which head cannot be included the swarms of mendicants who infest every street and alley of Rome, but those merely who are licensed by government, and who may be always distinguished by a label they wear around their necks. Another remarkable item is 81,230 individuals who cannot be said to have any settled condition; not that they are courtiers or nobles, but that they have no certain means of subsistence;—a state of things, even after making every deduction for youth, perilous to the good order of

society. Of those who are in religious orders, we have 6,129, including doubtless many excellent and many learned men, but together exercising an influence on the mass which is anything but healthy. The excess of males may here be explained in some measure by the number of clergy, and that so large a number of foreigners are constantly domiciled at Rome, amounting to 15,697, who are in a large proportion young men pursuing their studies. The population for some years has been on the decrease; in the year 1842 it has increased by 455.

Bonn, September 1844.

You will be glad to hear that there is a probability of a complete reform among German students, though many years must elapse before it can become general.

Among those students who led the most reckless life, the theological were distinguished, especially at Bonn, Halle, and Heidelberg; it is, therefore, the more praiseworthy that the movement at which I have hinted should have begun with them. Five years ago, several theological students of Bonn first conceived the idea of uniting together, in order to oppose more effectually the unions of drinking and fighting students (*die Chöre*). They called themselves the Theological Society (*die Theologische Verbindung*), but most of them, being "infirm of purpose," were unable to withstand the annoyances to which they were exposed, and after a short period the Society broke up without having effected the least good. Thus everything remained as it had been until the end of the year 1841, when several students united together at Bonn, and pledged themselves to do all in their power to oppose the different unions. The leaders of this new society, who deserved to be mentioned, were M. Otto Reinhardt, of Neuwied, and M. Albert Schoeler, of Winningen. One of their leading principles was to put down duelling and drunkenness by a steady example. They resolved to have meetings twice a week, at which every student in turn should speak on a given subject, to be afterwards fully discussed. Drinking was not abolished. Every one might drink what he liked, provided he kept within the bounds of sobriety. To attend regularly at lectures, to dress properly and neatly, and to behave out of doors like men and gentlemen, were among their rules. The members of the club were resolved that it should be eminently a Christian society, to which only Christians (including all sects) should be admitted. No new member could be inrolled in the society, who was not known by three-fourths of the members to be a gentleman in principle, and likely to conform to its laws. After its formation had been permitted by the Senate of the University, a regular code of laws was established, and each new member sworn to observe them. Besides the ordinary, there were extraordinary members, those who were supposed to be well-principled, but who did not consider duelling as an infringement of God's laws. Every one wishing to become a member was first received as an extraordinary member. If an extraordinary member changed his opinion on the subject of duelling, and was found worthy, he was admitted as an ordinary member, provided the majority coincided. Any ordinary member who objected to his admission, was compelled to state his reason.

As might be expected, such a society met with great opposition from the large body of students whose practises it diametrically opposed. Every taunt that could be imagined was applied to its members; they were insulted in broad daylight, they were called cowards, and it was said that all spiritless students entered their ranks. They obtained the mock-name of *Tugendbund* (virtuous society). It required a truly brave and principled man to keep his temper and to be the leader of such a society, a post which was well maintained by the above-mentioned A. Schoeler. Its principles, however, have conquered, and it is now an esteemed and respected body. Its numbers have risen from seven to thirty-two, and I have been surprised and delighted to hear some of the speeches on such subjects as "Freedom," "Honour," "Duels and their tendencies," &c. I have spent three evenings with them, of which I shall always think with pleasure. As a proof of the respect in which the society is held at the University, I need but mention that its rector and Professor Arndt, the poet, did not think it beneath them to be present at the celebration of its anniversary last year.

Since the formation of the *Germania*, a name given by the members to their association, societies professing the same objects have been formed at Berlin, Heidelberg, and Halle, and only two months ago a letter was written to the representatives of the Germania at Bonn, in the name of twenty students of Giessen, tired of their present life, who desired to have its code of laws forwarded to them. In Heidelberg, a newspaper has been established to uphold these principles.

Another society has been formed at Bonn, on nearly the same plan as the Germania, but it does not abolish duelling. The members of the Germania are distinguished by a black velvet cap without shade (*Barett*), and on gala days a small silver cross is fastened on the front of the cap.

OUR WEEKLY GOSSIP.

A public meeting has been held in the city of London, under the presidency of the Lord Mayor, for the purpose of forming an Association to furnish the labouring poor with Baths and Washhouses. The intention, as stated by the Bishop of London, is, that the working man shall have a bath to himself, where, at a price within his means, he may perform his ablutions in private; and that his wife may have a public washhouse to resort to, where, for the washing of her family's clothes, she will be supplied with hot and cold water, tubs and other conveniences, at the rate of 1*d.* for every six hours—besides the use of a drying-room, furnished with all necessaries. A similar establishment, on a limited scale, has been for some time in operation in the town of Liverpool, and with such manifest benefit, that the corporation have determined to extend the system. We are friends to all proposals of the kind in favour of the working man; and we think that charity has got upon the right track, when she gives in forms that raise the moral man, while they comfort the physical. Cleanliness in the persons and habitations of the poor is a matter of great importance on many considerations,—but in nothing is it more so than its tendency to elevate the tone of his feelings, and nourish the sentiment of self-respect. What cleanliness and ventilation, and healthful exercise must do for the physical man of the toiling world, it is no longer needful to insist on. Yet the old hackneyed argument has been used, which pleads, against the poor man's relief, his own presumed acquiescence in the wrongs of his fortune. The poor, it is said, do not want this relief—do not care to be clean—have no feeling of the evils sought to be removed by this society. If the poor do not know the blessings of cleanliness, teach it them. Give them the habit, and you communicate the sentiment—and, in doing that, confer a boon far beyond the physical good, though coming through the latter, and perpetuating it. But the poor are not fairly treated in the argument,—they are, in this as in other things, what their hard lot makes them. It is quite new to the poor, as a class, to be addressed in the language which is now spreading—and shall spread. Charity long thought she did all the poor needed, and which was due from her, when she threw the husk to their hunger. Now she speaks to them as men, offers them intellectual fellowship, respects their common nature; and the result will be self-respect in the poor man, and a liberal return of it to his benefactor. We are satisfied that the new movement has solved a great social secret. But to return to the Baths:—what says Archdeacon Wilberforce, in answer to the charge that the poor love their "wallowing in the mire," and will not choose to be lifted out of it—that they covet their title of "the great unwashed." Speaking as one who has had large experience of them, he says—"it is not true that the poor man is indifferent about cleanliness. The reason why some people are led to suppose that the poor are indifferent to the comforts of purity, is, that the *poor are patient*. The poor as a class, are eminently patient; they endure without complaining; they bear evils long and silently."—"It is quite true," he adds, "that the Association cannot, by a single effort, impart habits of cleanliness to a whole population; but they can, at any rate, do this—they can remove those obstacles to purity which favour uncleanliness." The example of Liverpool proves that there are hundreds who will gladly avail themselves, at once, of the benefits provided by this institution; and the hundreds will soon be thousands, in the view of the comforts which it will bring. The meeting was numerously and influentially attended—and the object was fully adopted.—A correspondent of the *Times* suggests the sinking of an artesian well, like that of Grenelle, for the abundant supply of this institution, and other popular uses:—and another correspondent asks why sea-water might not, now, be readily brought to London for such objects, by a company contracting with any coastward railway, (the Brighton, for instance,) for leave to lay down pipes by the side of their line.

We find the following notice, in the *Globe*, without any authority given for the statement—and strangely at variance with the painful intelligence since published by the *Times*—as it states "on authority":—bearing date both before and after that of the news communicated to the *Globe*:—"Dr. Wolff writes from Bokhara, dated July 25,—'The Ameer has returned from Kokhan, and presented me with a dress of honour, a horse, and 100 tomauns, and I hope to set out in a few days for Persia.'" The *Times* states that letters have been received from this unfortunate gentleman—a self-made victim, there is but too much reason to fear, in a generous cause—dated Bokhara, June 27 and Aug. 1, and observes that their contents "stand in melancholy contrast with those idle reports which have appeared lately in the papers, and which, whatever may be the motives of those who employ themselves in originating them, can answer no other end than mystifying and misleading the public on this very grave affair." In his letter of the 27th, the Rev. Doctor says: "I have now been already two months in this place; and though, five or six times, the King has promised to send me instantly to England, with one of his Ambassadors, I am in the greatest danger. I cannot stir out of the house without a guard of three men. Dil Hassa Khan, the fellow sent with me by the Assoff Addoola, has shamefully robbed, deceived, and outraged me. The Persian Ambassador, Abbas Kooli Khan, is kind to me, but I think he will not have it in his power to rescue me. Nayeb Abdool Samet Khan has extorted from me a writing to pay him 5,000 tomauns to effect my liberation. I suspect him that he was the cause of Stoddart's and Conolly's death, in spite of his continual protestation of friendship. * * The Ameer is now at Samarcand; and I am here awaiting the most fatal orders from the King daily to reach me. It is true that poor Stoddart professed openly Christianity, after he had made a forced profession of Mohammedanism. Do for me what you can, as far as the honour of England is not compromised. All the inhabitants wish that either Russia or England should take the country. Do not believe any former reports of my speedy departure, for I am in great danger. JOSEPH WOLFF."

On the 1st of August, the Rev. Doctor addresses the following "To all the Monarchs of Europe,"—"Sires,—I set out for Bokhara to ransom the lives of two officers, Stoddart and Conolly; but both of them were murdered many months previous to my departure, and I do not know whether or not this blood of mine shall be spilt. I do not supplicate for my own safety; but, Monarchs, 200,000 Persian slaves, many of them people of high talent, sigh in the kingdom of Bokhara. Endeavour to effect their liberation; and I shall rejoice, in the grave, that my blood has been the cause of the ransom of so many human beings. I am too much agitated, and watched besides, to be able to write more. JOSEPH WOLFF."

There is great difficulty in deciding on the authenticity of documents like the above, unless we knew something of the authority through which they come. It is somewhat perplexing to us to know how such letters find their way out of Bokhara at all, from a party watched as Dr. Wolff is therein stated to be,—how *he* could possibly have said *so much*, who fears to say *more*, because of that *surveillance*. There are passages in the above documents which, on the suppositions of the remainder of them, would instantly forfeit his head. We cannot but indulge the hope that, whatever inconvenience and alarm the generous missionary may be exposed to, in this lawless city of Bokhara, his life will yet be safe. In the case of a party coming with an open purpose and strongly

accredited, as the Doctor did, there could be none of the political pretences for taking it, which the positions of poor Stoddart and Conolly unhappily furnished; but we do earnestly trust, notwithstanding, that our government will lose not an instant in applying whatever influence it has the means of bringing to bear upon the danger. There is not a moment to be lost; and, indeed, if the peril be what these documents represent, it is most alarming to reflect upon the chances of the interval between their date and any possible operation of the authorities at home, which has had to be set in motion subsequent to their reception.—The *Times* has since copied from the German papers a letter from Constantinople, dated Sept. 25, which seems to have some relation to, and be so far a confirmation of, the tidings published by the *Globe*; and would furnish a more hopeful view of the matter, were it not for the manifesto to the Princes of Europe, which seems to bear a later Bokhara date than any of the other intelligence received. The letter in question is as follows:—"The most recent accounts from Teheran speak again somewhat more favourably for our countryman, Dr. Wolff. The Emir of Bokhara, after his return from Samarcand, sent for Dr. Wolff, gave him a very good reception, presented him with 100 pieces of gold, a horse, a kaftan of honour, and gave him permission to commence his return-journey. Nevertheless, people in Teheran had little confidence in the affair; and strongly suspected that the Emir would cause the missionary to be overtaken and murdered on his journey. Of his actual departure we have yet no intelligence. It seems, he was waiting until the Persian embassy, then in Bokhara, should set out. Should he succeed in joining it, his safety may be regarded as secured." The inference from all these documents and their assigned dates (assuming their truth), would seem to be—that the return of the Emir to Bokhara had been at first more propitious to the Doctor's hope of liberation than his fears had anticipated; but that some change had since occurred to occasion the sort of testamentary appeal, which seems written under the apprehension of pressing peril.

Monday, the 28th inst., has been finally appointed by the Queen for the opening of the new Royal Exchange; at noon of which day Her Majesty will knock at the gates of her capital, on her visit of inauguration to its merchants.

From Berlin we learn that the King of Prussia has followed the example of the French monarch in giving, at his palace of Potsdam, a festival to 500 of the manufacturers who were contributors to the Exhibition in the capital. The royal carriages met the guests at the terminus of the railway, and carried them in procession to the palace, where refreshments and Mozart's opera of 'Figaro' awaited them. They supped afterwards with the royal family, and returned at midnight by means of the King's carriages and the railway to the capital. A grand concert was given a few nights before by the King at Sans-Souci, under the direction of Meyerbeer; the programme of which was composed wholly of the works of the old German masters, Fuchs, Hasse, Benda, Sebastian Bach, &c. The new opera house could not be got ready, as was hoped, for inauguration, on the King's birthday; and his Majesty has ordered its opening or the 7th of December, being the hundredth anniversary of the day on which, under Frederick the Great, the theatre which it replaces was inaugurated. In the same capital a new tragedy, 'Maurice of Saxony,' has been prohibited, on the ground of its dealing disrespectfully with the great-grandfather of the present King, one of its characters.—It is worth recording, that the Prussian monarch has appointed a commissioner charged with the task of preparing a scheme which may render the administration of justice in Prussia wholly independent of the executive power.—While lingering among German matters, our eye has been caught by a report, which, though that of a mere private celebration, really seems worth translating to our columns, as a curious example of personal calm and immobility in the exercise of functions that keep all the pulses of society in movement, and echo all the stir and tumult of the world:—a dinner has been given at Hamburgh, by the proprietary and establishment of the political daily journal, the *Hamburgh Impartial Correspondent*, which was attended by all the master printers of the city and deputations of their respective bodies of workmen, to celebrate the 60th anniversary of the entrance into their printing-office of a compositor named Frederick Joseph Hein. In all those sixty years, it is stated, the said Joseph Hein has never once absented himself from the printing-office for a single day, and the number of characters which have passed through his hands in that time is calculated to exceed 24,000,000. The influence which they may have exercised in the combinations given to them by his hands who shall estimate? We are irresistibly reminded, as we read, of one of those stationary engines which, fixed themselves immoveably to some spot on the line of a railway, keep up a perpetual current of motion without, and are sensible agents in the ceaseless movement that physically circulates around the world.

In the city of Parma has been discovered, at a great depth, and in good preservation, the theatre of the ancient town. The government has ordered further excavations to be immediately commenced, and has purchased a number of houses belonging to individuals, which stood in the way of complete exploration.

The Glasgow people appear to be well satisfied with their Wellington Statue, and the angry feelings which so long divided the body of subscribers respecting the choice of the Sculptor [*Athen.* 704, 729] may be presumed to have died away in view of the acknowledged excellence of his work. The Baron Marochetti has subdued the spirit of resistance to the spell of his genius. It is, nevertheless, somewhat amusing to hear the voice of provincial enthusiasm replacing the stormy language of polemics. The national caution while a bargain is incomplete, has made way for the national self-gratulation at what they have got; and the work of the foreigner, now that it is actually a possession of the good town, has all the exaggerated honours that could have hailed it as the production of a Scotchman. Few graven images, according to the Glasgow journalists, have any chance against this Glasgow statue; and this very characteristic sentiment has not taken us by surprise. But our northern brethren, amid their self-satisfaction, are generally self-possessed; and we did not expect to find their sensibilities overflowing after the fashion of the Dieppois. Yet it was so, if there be faith in journalism—a study of the bas-reliefs "moving the spectators—yea, even unto tears." The statue, it appears, is "one of the most wonderful and beautiful specimens of sculpture which has ever adorned any city;" and the bas-reliefs are "the most wonderful pictures which the reporters have ever had the fortune to look upon"—one, in particular, they are quite prepared to learn, is "unequalled in Europe." These phrases will convey no very clear meaning to the apprehension of our readers,—and we cannot help them. We have, ourselves, no notion of the value of a circulation like this, and cannot, therefore, reduce it to the sterling coin of criticism. We must content ourselves, therefore, with a mere description of the work, extricated from these rhetorical flourishes:—The pedestal, which is of Peterhead granite, is 8½ feet high. On this the statue is placed, resting on a floor of bronze. The horse, it is said, is the work of a bold and masterly hand. The animal has just come to a state of repose, and seems as if listening to some distant sound. The head is that of an Arab, with the broad forehead and wide nostrils, and is standing with fore foot a little in advance, in an easy posture, the reins lying slack. The position of the Duke is that of a general reviewing his troops. The likeness is taken when the Duke was in the prime of life; and the hero is dressed in the full uniform of a Field Marshal with his different orders. The bas-reliefs on the south and north sides of the pedestal represent the first and last victories of the Duke—namely, that of Assaye, fought on the 23rd of September, 1803, and that of Waterloo, on the 18th of June, 1815; and on the east and west ends are two smaller bas-reliefs, representing the soldier's return to his home, and his restoration to the plough, as the final fruit of the Duke's victories.—Speaking of sculpture, we may mention that a beautiful monument of white marble, executed by E. H. Baily, R.A., has just been erected in the south aisle of Bristol Cathedral, the artist's native town, to the memory of the late Dr. Elwyn, barrister-at-law. It adjoins a monument by Chantrey, erected by Dr. Elwyn, to the memory of his second wife.

The gentlemen of Glasgow, taking advantage of Prof. Liebig's presence in this country, have done themselves honour by inviting that great practical chemist to a public dinner. In answer to the toast which proposed his health, the Professor made, amongst others, the following remarks:—The benefits which science is capable of conferring on agriculture cannot, I believe, be too highly estimated. * * Science teaches us to recognize the food of plants, and the sources from which it is derived. This knowledge alone makes us the true masters of the soil—the lords of our capital. We can now see where we are guilty of waste, and where we are too sparing. The great truth that animal manures are nothing else but the ashes of the food produced from our fields, consumed or burned in the bodies of men and animals, has given the chief direction to all modern improvements in agriculture. Who would have thought it possible, a few years ago, that gas-works would yield a powerful manure? We now know on what cause the exhaustion of our soils depends—it is the most precious ingredients of the soil which we remove in the crops, and thus impoverish our fields. By analyzing the ashes of plants, we learn what we must add or replace, in order to restore the original fertility of the soil. Africa and Peru supply us with the mineral elements of bread and flesh in the shape of guano; and chemical works now produce the other mineral substances which are indispensable to turnips and potatoes. It is evident to all that the present age has entered upon a new path; we have now to do with the real, not with the imaginary value of the manure. As we have learned now to measure the value of an acid or an alkali, so we can now ascertain the true value of a manure. This, therefore, is precisely what we must expend on the soil, in order to obtain a profit; for the capital of the farmer consists of his labour and his manure. Much, certainly, remains to be done. According to the geological character of the soil, the farmer must decide on the means to be employed for its improvement. The mineral food of the plants of all countries must be ascertained by the analysis of their ashes; we must determine which substances are essential, which accidental—we must endeavour to find out in which plant one ingredient or another may be replaced, as lime by magnesia, or potash by soda."—Prof. Liebig is now in the neighbourhood of Liverpool; in which town it is proposed to offer him a similar testimony of respect.

The Scientific Congress at Milan brought its proceedings to a close on the 27th ult. A medal has been struck in honour of the meeting, and distributed amongst the members. The face of the medal represents Minerva and the city of Milan, with a column on which are engraved the names of the most celebrated artists and *savans* of Italy. Among experiments of interest conducted during this Congress at the expense of the city were, one by Prof. Schönbein, 'On certain Properties of Nitrogen;' one by M. Bouttigny, 'On the Phenomena presented by Water and other Liquids brought into contact with Solid Surfaces having a determinate Temperature;' and one by Prof. Matteucci, 'On the Conductibility of the Electric Fluid by Earth.'

We have to record the death, at his seat, Stoke Park, of Granville Penn, Esq., F.S.A., at the age of 82,—whose works on religious subjects, though of an eccentric order, have much ingenuity and learning. Mr. Penn was the descendant of an ancient and distinguished family, which has left historical traces in two continents. His later years were passed in great retirement; and the substantial value of his works may be indicated by the fact, that he had outlived the memory of his generation.—We drew attention some time ago [*ante*, p. 714] to a small volume of poems, called 'Evenings of a Working Man,' the production of a mechanic introduced to the public in a sensible and kindly preface by Mr. Charles Dickens, with the hope that its patronage might bring some pecuniary alleviation to his own declining health, and make some small provision "for his sick wife and very young family." Poor Overs's malady has since terminated as he expected, in death; and it may be feared that this last hope of his life will have been but slenderly realized for the benefit of those whom he has left behind him. The case is well deserving the sympathies of the benevolent,—and, by its literary side we cordially offer it to the notice of our readers.—We

may mention, too, the death of the Rev. Robert Taylor, as he was called, though long since deprived of his clerical character, and latterly practising as a surgeon at Tours, in France. Mr. Taylor, as most of our readers know, made himself very notorious as a lecturer in the metropolis, some years ago, and ultimately involved himself in a prosecution which resulted in a two years' imprisonment. He is said to have left behind him a mass of manuscripts on the subject of his old polemics, though the newspaper notices of his death state that he had of late years renounced their principles.—In this obituary paragraph, we may add that the University of Göttingen has lost one of its distinguished professors, M. Hugo, who has filled the chair of Jurisprudence in that body for nearly half a century —since the year 1792. His 'Treatise on the History of the Roman Law,' his 'Treatise on Natural Law,' and his 'Institutes of the Existing Roman Law,' are amongst his most distinguished works. M. Hugo was the father-in-law of the illustrious Ottfried Müller, so early lost to science.

MEETING FOR THE ENSUING WEEK.

TUES. Zoological Society, half-past 8.—Scientific Business.

MUSIC AND THE DRAMA

CONTEMPORARY MUSICAL COMPOSERS.

ROBERT SCHUMANN.

OUR wandering *dilettanti* have for some years been pointing to Leipsig as the musical metropolis of Germany. Considering, indeed, the present languishing state of Opera in the great cities, both north and south, that town, where the best concerts of orchestral and chamber music are to be heard, where the greatest number of successful novelties has been brought forward, and whence the most liberal issues of new publications proceed, deserves the above designation. Not long ago, too, this same good town of Leipsig fulfilled "the forms" of a capital, as far as music was concerned; having its conservatives, its liberals, and its radicals. Herr Schumann was the leader of the last party [see *ante*, No. 681], being then, and probably even to this day, editor of the revolutionary periodical which set itself against the "rights divine" of authority, rhythm, and melody, as understood by the old composers. His compositions, like those of M. Berlioz, were considered as too profoundly poetical for any, save the initiated, to comprehend. The prevalent mood of mind might indeed be inferred from certain works being graced, by way of title, with the name of Hoffman's band-master, Koeissler, the hero of a tale which is as fantastic among art-novels, as "The Doctor" among collections of essays. Not even the solid and intellectual playing of the composer's lady (missed from the world of pianoforte exhibitors as Mdlle. Clara Wieck) could make these rhapsodies intelligible. Yet, that the rhapsodies possessed a congregation of believers, was evinced by an anecdote current in the musical circles of Germany about the time of Herr Schumann's marriage. Some prudential difficulties having arisen, it was gravely averred that he had bound himself to produce a work equal to Beethoven's Choral Symphony within a twelvemonth, as an earnest of future success and competence; and by many, the promise—or the story—was treated neither as a gasconade nor an invention.

The Symphony, if ever completed, has been tried, "and made no sign." In lieu of it, we have before us a grand concert-cantata, founded on 'Paradise and the Peri,' from 'Lalla Rookh.' The form of Herr Schumann's effort was wisely chosen, since the world stands in great need of secular concert-music, independent of stage-associations. The aspirant, too, could hardly have made choice of a better subject than Moore's oriental tale. Fairyism—human passion—the conflicts of the battle-field—the innocence of childhood—the repentance of the sinner —the rapture of pardon and beatification, are in turns presented to the musician. Nor has there been wanting assiduous effort on Herr Schumann's part to do justice to the varieties which the legend embraces. Ambition is everywhere present in his cantata: sometimes the writer endeavours to be scientific; at others, gratuitously divests himself of modern resource, that he may be simple; here, heaping chord on chord of a desperate crabbedness; there, chaining modulation to modulation of as desperate a commonplace. Yet he perpetually offers violence to his own principles and those of his school. While there is little melody which they do not denounce as empirical or disdain as *perruque*, he is not able to bring one single movement to an end, without using the form of the tune-makers whom he and his party have so reviled. For instance, after a few bars of introductory symphony at once dry and solemn, and a few bars of narration, given in recitative to a *contralto* voice, the Peri enters—to adopt the technical phrase—on the line,

"How happy," exclaimed the child of air.

This lament is properly set as a *soprano* ballad; but we recollect nothing with a *refrain* belonging to *vaudeville* or comic French opera, more stiff or more mannered in its forms—nothing, we are sorry to add, so meagre and wanting in "air and grace." Almost directly afterwards the Peri has another lay on the words,—

I know the wealth of every urn
In which unnumbered rubies burn,
Beneath the pillars of Chilminar.

Why these should be set in a drawling *tempo*, we cannot guess. The charm of this movement, if charm there be, must lie in its murmuring undercurrent of accompaniment; but the flow and the whisper thereof cannot disguise the triviality of the idea, which, with an acceleration of *tempo*, is precisely the two first bars of a poor 'La Poule,' as quadrille tunes were twenty years ago! Then, we have the battle-scene: a fierce, confused, angry chorus, to which succeeds the apparition of the Peri by the side of the dying warrior. When gathering the drop of life-blood, she cries,

Be this
My welcome gift at the gates of light.

These words are arranged as a *solo alla capella*, in the midst of a slow mournful lament,—more ungracious, more discordant was hardly ever collocation of semi-breves: and on the words, "Eden's door," comes a sustained tone, betwixt a whine and a scream, enough to affright the tuneful choir, and doom the unfortunate singer to

Regions of sorrow, doleful shades of Night!

This scene ends the first part or division of the cantata.

In the second, the outcast Spirit is seen in the mystical land of Egypt. Perhaps the happiest movement in this work is a chorus of the "Genii of the Floods," who

Dance round the cradle of the Nile,

in which a certain graceful individuality is revealed. To this, as will be remembered by all familiar with the poem, succeeds the scene of the Pestilence, and the impassioned dialogue of the lovers: somewhat oddly and unphilosophically treated. (That we may not seem to cavil, it must be remembered that we are dealing with one who has emphatically asserted the pertinence of sound to sense.) The narration is commenced in straggling ballad couplets, allotted to the *contralto*: then enters the interlocutor, a tenor, the youth who

—had thither stolen to die alone,

and sings the first portion of his complaint to the same time, thus awkwardly confusing prologue and drama. Yet far sweeter is this, than the adjuration of "Love strong as death," in the person of the maiden who

—comes by stealth
This melancholy bower to seek—

since, like the Peri's farewell to the dying hero, her love takes the form of a scream rather than a song: and the effect of its high notes and uncomfortable intervals is exaggerated by being laid out in one of those extreme keys, never thought of by the old composers, who had ideas in such plenty, that there was no need of extra sharps and flats, by way of giving worn-out thoughts the semblance of novelty. The following strain given to the Peri on the words,

Sleep on! in visions of odour rest!

and repeated in a lulling chorus, is far more winning, and with voices and a soft orchestra, must produce a genial and delicate impression, by way of close to the second part.

Part the third commences with a chorus of houris, sufficient, whether accepted singly, or as part of a great work, to decide the amount of Herr Schumann's expressive—whatever be his appreciating—power. Here the professed melody-breaker appears yet more signally than hitherto as a melody-maker, in a pattern so trite, that it has been long laid by. The luckless houris are graced with a chorus with a *musette* accompaniment, the only fit place for which is "the dismal halls of envy" in a pantomime introduction, or any like situation, where a parody of light and fantastic music was wanted. Passing a few superfluous interpolations, we reach what may be distinguished as the evening-prayer scene. What a group for the musician does the pair described by Moore—the unconscious child and the crime-stained man!—what a colouring do the hour and the clime "of palm and minaret" suggest! Yet alas! Herr Schumann conducts us through a wilderness of modulations, alternately rough and trite, to a bald and common-place *corale*. But the summit of misapprehension has yet to be reached.—Who could imagine that the Peri's outburst on the words,

Joy! joy! for ever!

should be set on a chord so distributed as to have the suspensive effect almost of a discord? this said suspense being prolonged for four bars, and leading into a sort of *fanfare* passage, as if the forgiven one were about to storm "Heaven's gate" with a flourish of trumpets! After this, a sort of *stretto* starts off, in which the one attempt at originality (the B natural in the second bar of the tune) is a French touch of disappointment in place of satisfaction, rendered all the more unpleasantly salient by the pedal bass. This *finale* is spun out; the composer having strained every nerve in quest of climax, but he has only succeeded in straining the throat of his principal songstress. "She, poor bird," is called upon to sustain a c *altissimo* for six bars—a service never demanded of vocalist, even by the merciless Beethoven himself in his 'Choral Symphony' or 'Posthumous Mass;' nor called for by those more recent destroyers of voices in the search for sublimity, MM. Meyerbeer and Halévy. Such vigour as this cantata possesses resides in its choruses, and possibly in its orchestral treatment: of the latter we can only speak conjecturally.

Two novelties from Paris, Auber's latest opera, 'The Syren,' and 'Don Cæsar de Bazan,' a melodrama from the Porte St. Martin, just now divide the metropolitan stage between them; and a third 'The Seven Castles of the Passions,' announced at the Lyceum, is not unlikely to complete the monopoly of the London theatres, by French entertainments. Three versions of 'Don Cæsar de Bazan' have already been performed, and others are promised; 'The Syren,' has only found two representatives as yet; in both cases Mr. Maddox of the Princess's Theatre, has got the start of his brother managers, though first is not always best in the race of competition, where art is concerned. Certainly we cannot accept Mr. Wallack, as the most agreeable of *Don Cæsars*, though he is the most effective, and appears in the smartest and truest version of the piece. *Cæsar de Bazan* is a compound of Don Juan and Robert le Diable, with a dash of the adventurer; but his exploits are eclipsed by his escapes, which are little short of miraculous; and the rise of his fortunes is more rapid than their previous fall. The incidents are not worth recounting, being merely striking situations cleverly contrived to tell with dramatic force, and keep alive a factitious interest; indeed, the points that are most effective on the stage would lose most in description. The circumstance of Frederic Lemaitre having "created" the part, affords to those who have seen this most dashing and polished personator of *chevaliers d'industrie*, the best clue to the nature of the principal character. Mr. Wallack makes *Don Cæsar* a brigand; Mr. C. Mathews, aided by a light-comedy version of the melodrama, softens down the strong features of the drunkard, dicer, and duellist, into those of a hare-brained young *roué*, with more address than cunning, and more wit than wickedness; in short, he represents only a gay and reckless young voluptuary, out at elbows with fortune, and restored to the good graces of the fickle goddess, through his good nature and good looks. The heroine of the original is a Gitana, of ambitious aspirations, and strong affections; these

characteristics are preserved in the version of Messrs. A'Becket and Mark Lemon, at the Princess's, where Mrs. Stirling plays the part pathetically; in the Haymarket version the cunning little gipsy is turned into a merry artless flower girl, in love with grandeur, and pleased at finding her dreams of rank and title realized by the possession of a young and handsome husband. Miss Julia Bennett plays the part very prettily, with a *naïveté* and joyous hilarity that are quite winning. The other characters, too, are better supported at the Haymarket, and the costumes and scenic accessories are also in more elegant taste. The last new farce of Buckstone's, 'The Thimblerig,' is funny without undue exaggeration; the ludicrous situations are consequent on the nature of the dilemma, and there is consistency and coherence in the drolleries. It is capitally acted too by Buckstone, Strickland, and Mrs. W. Clifford.

'The Syren' is not likely to lure great numbers to either theatre, though Mdlle. Nau herself is an attraction at the Princess's. Neither Scribe in the libretto, nor Auber in the music, has been happy in his efforts, which fall short of the expectations raised by such a conjunction of talent; and the English version consists of a mass of bald dialogue, indicating a story equally strange, obscure, and uninteresting, interspersed with concerted pieces and choruses, with only one or two pretty airs, to please the popular ear. The ludicrous attempts of the English performers to deliver the dialogue with colloquial ease, and give effect to the comedy of the opera, render the acting painfully wearisome; their vocal exertions are not quite so unsuccessful, though but ill suited to the light and graceful music of Auber. The lateness of its production at Drury Lane compels us to postpone our notice of the opera itself, and the rival performances, to a more convenient opportunity.

MISCELLANEA

SONNET.

On the Projected Kendal and Windermere Railway.

Is there no nook of English ground secure
From rash assault? Schemes of retirement sown
In youth, and mid the busy world kept pure
As when their earliest flowers of hope were blown,
Must perish: how can they this blight endure?
And must he too his old delights disown
Who scorns a false utilitarian lure
Mid his paternal fields at random thrown?
Baffle the threat, bright scene, from Orrest-head
Given to the pausing traveller's rapturous glance!
Plead for thy peace, thou beautiful romance
Of nature; and if human hearts be dead,
Speak passing winds, ye torrents, with your strong
And constant voice, protest against the wrong!

WM. WORDSWORTH.

Rydal Mount, Oct. 12, 1844.

Let not the above be considered as merely a poetical effusion. The degree and kind of attachment which many of the yeomanry feel to their small inheritances can scarcely be overrated. Near the house of one of them stands a magnificent tree, which a neighbour of the owner advised him to fell for profit's sake. "Fell it," exclaimed the yeoman, "I had rather fall on my knees and worship it." It happens, I believe, that the intended railway will pass through this little property, and I hope that an apology for the answer will not be thought necessary by any one who enters into the strength of the feeling. W. W. —[*From the Morning Post.*]

A Reminiscence of Capt. Basil Hall.—"As one who has experienced, in no slight degree, the generous kindness of Capt. Basil Hall, whose active friendships knew no change, or abatement, with lapse of years, I may perhaps be permitted to recount a circumstance in his professional career, which does not appear to have been sufficiently noticed, or estimated as it ought to have been, among his more general admirers. His ship, the *Conway*, while on the South American station, performed, under his guidance, a feat in the annals of navigation, which well deserves to be remembered. Amply does it speak of the triumphs of science in modern times, and of which we believe no similar instance can be adduced. We arrived in Rio de Janeiro, from San Blas in California, after a passage of eighty-nine days, having made no land till we entered the harbour of Rio, and this our able Captain effected, sure of his mark, and with no blind confidence, in a fog and rattling gale, the ship at the time being deeply laden with treasure. The shade of Columbus must have smiled upon us with an approving smile, while pursuing our solitary track over thousands of miles of the Pacific, along the whole sweep of the vast Southern Continent of America, and rounding the rugged outskirts of its stormy cape, until we at length entered its narrow inlet, and cast anchor in the manner I have just described, in one of the most spacious and noble harbours in the wide bounds of his discoveries. This indeed was a practical test of Captain Hall's talents, and will yet speak for him, now he is no more, to those who can appreciate the circumstance, and prove that his professional skill was not the least of his many acquirements, and that his name in science, although less generally known, deserves to hold a place not less prominent than it does in the literature of his country."

FOURTEENTH MEETING OF THE BRITISH ASSOCIATION FOR THE ADVANCEMENT OF SCIENCE.

[*From our own Correspondents.*]

MONDAY, SEPT. 30.

SECTION A.—MATHEMATICAL AND PHYSICAL SCIENCE.

LORD ROSSE having concluded the account of his mode of constructing his telescope (see *ante*, p. 900), Mr. SNOW HARRIS read his 'Report of the Meteorological Observations at Plymouth,' which was, on this occasion, confined principally to the subject of Anemometry, and the working of the Anemometers. He observed that, although changes in the state and condition of the air were generally considered as matters of chance; yet the philosopher is well assured that every atmospheric change is the result of unerring laws. The great periodical and other movements of the air are intimately associated with such changes, and the anemometers confided to Mr. Harris were invented, one by Prof. Whewell, the other by Mr. Osler. By Mr. Whewell's a space is registered from time to time, proportionate to the space which a particle of air moving with a given velocity would pass over in a given time; and by uniting these comparative integrals in the indicated directions of the wind, a type of the wind is obtained for a given period of time. Three such types, for the years 1841, 42, 43, were then exhibited; and it appears, by these, that the great body of the air is moving toward the north, being subject to certain periodical disturbances, which take place about the equinoxes and solstices. By Mr. Osler's instrument the direction and pressure of the wind on a given area are registered for every instant of time. This register having been discussed, and the velocities deduced for the given pressures, tables representing the comparative intensity of the winds, reduced to eight points of the compass, were presented. The author proposes to consider the winds, reduced to eight points of the compass, as so many distinct forces, whose direction and intensity were given, and from this to deduce by certain well-known mechanical principles, the intensity and direction of the resultant. The question, thus considered, gives for Whewell's anemometer the following result:—

Years	1841.	1842.	1843.	Mean.
Direction	N. 15° E.	N. 12° W.	N. 2° E.	N. 1° 30′ E.
Miles per hour	4·5	4	3	3·95

In reducing the winds to four points of the compass, the relative values are as follows:—

N.	S.	E.	W.
381	829	305	586

In examining the direction and amount of wind for the four seasons of the year, it was found that the greatest amount of wind occurred in the spring and autumn, and the least in the summer and winter.

The mean direction in Spring is N. 10° W. 4·77 miles per hour.
Summer N. 20° E. 3·5 ,,
Autumn N. 6° E. 5 ,,
Winter N. 6° W. 3·4 ,,

In the discussion of the results of Osler's instrument, similar results were obtained as to velocity, but considerable differences were discovered as to direction; these differences are yet to be investigated, in order to ascertain whether they were referable to the difference of situation, or to the working of the instruments. On examining various directions of the winds, together with the atmospheric temperature and pressure due to each, it was found that the barometer was at a minimum with south winds, and continued to rise in going toward the north by the west, until it reached its maximum at N. and N.E., after which it declines. The temperature, on the contrary, proceeds in an inverse order to this. It is least on the N.E point, where the barometer is highest, and greatest on the south point, where the barometer is lowest. The mean velocities of the different winds do not appear to differ very considerably, but when this mean velocity is multiplied into the time for which each wind blows, then considerable differences are observed to arise. The amount of wind increases from a minimum at south-east, in passing round the circle by the south, to a maximum at north-west, after which it again declines.

The communication of Lord Rosse had occupied so much time, that the following papers were merely announced:—

'On certain points connected with Elliptic Polarization of Light.'

'A summary of the contents of Letters and Papers received from Alten, on the Climate of Norway and Finmark.'—One letter, dated Alten Observatory, 20th of April, 1844, from J. H. GREAVE, Esq., detailed the difficulties which he had to encounter on ascending the mountain called *Storrandsfjeld*, on the 1st of December 1843, to fix a minimum thermometer on the apex; and of his second expedition, on the 17th of April 1844, to examine it, and bring it down to Alten: the lowest degree of cold on the top of the mountain, during the winter, having been −35° centigrade, and the lowest degree at Alten −27°,—a difference of 8 degrees between the two places.

A paper was then read by the Rev. T. RANKIN, 'On the Temperature, at various Depths, in a Well of 348 feet deep, at Huggate, on the wolds of the East Riding of Yorkshire,' from which it appeared that the temperature in the shaft of the well was regulated by that of the water: thus, shaft 57, water 50; shaft 56, water 49, difference 7.

'On a new Steering Azimuth and Surveying Compass,' which is now on trial on board H.M.S. *Blazer*.—'On the Shape of the Teeth of the Wheels for the Clock in the New Royal Exchange;' and 'On a new Anemometer,' which was described in the *Athenæum* and the other papers two months since.

TUESDAY.

Col. SABINE read a Report drawn up by Sir J. Herschel, on the part of the Committee for Magnetic and Meteorological co-operation. Nothing short of a transcription would do it justice. But we feel the less regret on this account, as it will be printed at length in the forthcoming volume of the Reports. The arrangement of the subject was the same as that of former Reports of the same Committee. A proposal had been submitted in the current year, to the Governor of Ceylon from Capt. Pickering and Dr. Templeton for the establishment of a magnetical and meteorological observatory at Colombo. This proposal was favourably received by his excellency, who recommended it to the consideration of the Colonial Secretary at home, with the additional suggestion of an astronomical observatory; offering to devote to it local funds, if approved, for its maintenance, and only requiring its establishment or being furnished with suitable and approved instruments. A similar proposal had been received from Newfoundland, and at the Azores. As the duration of the magnetic and meteorological observations now in progress, will cease with the year 1845, the Committee conclude that "it will be necessary that before that time, and in fact if possible, at, or before, the next meeting of the Association, the important question should be seriously taken into consideration, whether any endeavour ought or ought not to be made, to obtain from the several governments which have supported the existing observatories, further support—a very grave question, which has been already brought under the notice of the Committee, by one of their most active coadjutors, M. Kupffer, director of the Russian Magnetic Observatories, and which it is highly proper should be considered in every point of view, with an earnestness commensurate to its scientific importance, and to the large and liberal manner in

which that support has been already granted." A notice by Mr. Byatt, of atmospheric waves, illustrated by many diagrams.

The next paper was a Report, by Sir J. Herschel, of the Committee for revising the nomenclature of the stars. The importance of this revision had been long admitted; but the chief interest of it at present is connected with the printing and publication of the three great catalogues, viz. "The British Association Catalogue," "the Southern Catalogue of Lacaille," and the extensive "Catalogue of the Histoire Céleste." The great extent and high authority of these catalogues, and their appearance all at one epoch, their preparation on a uniform system, digested and arranged by the late Mr. Baily, and the use of the same nomenclature throughout all three, can hardly fail to give that nomenclature universal currency, and to do away with the uncertainty which has so long prevailed. In resting therefore at this point the Committee consider that a great practical benefit will have been conferred upon astronomy. The Report proceeds to point out the precautions which required to be adopted, which of course form a direct proportion to the benefit to be obtained and the extent of the system adopted: it pointed out the proposed changes of arrangement of the constellations both of the northern and southern hemispheres, and the surveys of the heavens, which had been accomplished by Sir J. Herschel, in ignorance of the labours of M. Argelander, whose celestial charts, however, have arrived in this country, and been consulted by the Committee. An appendix embodies the principles and plans on which the Committee proceed, with an historical summary of all that had been previously accomplished, in the same field of labour, from the days of Ptolemy to the present time.

'On Crystals in the cavities of Topaz, which are dissolved by heat and re-crystallize on cooling,' by Sir David Brewster.—Sir David gave a brief notice of the discovery which he had made, about twenty years ago, of two new fluids in the crystallized cavities of *topaz* and other minerals. One of these fluids is very volatile, and so expansible, that it expands twenty times as much as water with the same increase of temperature. When the vacuities in the cavity which it occupies are large, it passes into vapour, and in these different states he had succeeded in determining its refractive power, by measuring the angles at five feet. Total reflection takes place at the common surface of the fluid of the topaz. The other fluid is of a denser kind, and occupies the angles and narrow necks of cavities. The cavities, however, in which the soluble crystals were contained are of a different kind. They (viz. the cavities) were imperfectly crystallized, and thus they exist in specimens of topaz which contain the cavities with the two new fluids; they contain none of the volatile and expansible fluid, which is doubtless a condensed gas. The crystals which occupy them are flat and finely crystallized rhomboids. When heat is applied, they become rounded at their angles and edges, and soon disappear. After the topaz has cooled, they again appear, at first like a speck, and then recrystallize gradually, sometimes in their original place, but often in other parts of the cavity, their place being determined by the mode in which the cooling is applied.—We understand that Prof. Liebig, who regards these fluids and crystals as peculiarly interesting, has made arrangements to investigate their nature, when taken out of their cavities by Sir David Brewster,—an operation of extreme difficulty, owing to the small size of the cavities which contain them, and the rapid disappearance of the volatile fluid, which rises into a drop and contracts into a flat disc, as if it were endued with vitality, finally vanishing and leaving a sediment behind it, which, when breathed upon, again becomes fluid.

Sir David Brewster gave a notice explaining the cause of an optical phenomenon, communicated to to him by the Rev. Mr. Selwyn. When a number of parallel black lines are intersected at right angles by other black lines, so as to inclose a number of squares or rectangles, a white spot appears at the intersections of all the lines. In order to discover the cause of this phenomenon, Sir David Brewster made the experiment with the broad opaque bars of an old-fashioned window opposed to the light of the sky. Along all the bars, he saw a whitish nebulous light, which was the complementary or accidental colour of the black bars seen simultaneously with the bars. The same luminosity was, of course, seen of equal intensity along all the bars, but at the crossings, the intensity of its light was greatest, so as to produce the white spot already mentioned. Now this spot did not arise from any increased effect at the intersections, but from a *diminution* of the complementary luminosity at all other parts of the intersecting lines. This diminution of intensity arises from the action of the white squares or rectangles upon the retina tending to diminish the sensibility of that membrane along the parts corresponding to the black lines, and is always greatest by oblique vision. It is an action analogous to that which takes place when a strip of paper laid upon a green or any other coloured glass disappears when the eye is fixed upon a point an inch or two distant from the paper. Hence the luminous spots are brightest when not seen directly.

The Astronomer Royal stated that he had observed a similar appearance in chequered points, where the squares were blue, and the bars drab; but that, as might be expected the illuminated spots were rather of an ash colour than white.

'An Account of the Cause of the Colours in precious Opal,' by Sir David Brewster.—This gem is intersected in all directions with colorific planes, exhibiting the most brilliant colours of all kinds. The cause of these colours has never, we believe, been carefully studied. Mineralogists, indeed, have said that they are the colours of thin plates of air occupying fissures or cracks in the stone; but this is a mere assumption, disproved by the fact that no such fissures have ever been found during the processes of cutting out, grinding, and polishing, which the opal undergoes in the hands of the lapidary. In submitting to a powerful microscope specimens of precious opal, and comparing the phenomena with those of hydrophanous opal, Sir David Brewster found that the colorific planes or patches consist of minute pores or vacuities arranged in parallel lines, and that various such planes are placed close to each other, so as to occupy a space with three dimensions. These pores sometimes exhibit a crystalline arrangement, like the lines in sapphire, calcareous spar, and other bodies, and have doubtless been produced during the conversion of the quartz into opal by heat under the peculiar circumstances of its formation. In some specimens of common opal the striature is such as would be produced by kneading crystallized quartz when in a state of paste. The different colours produced by these pores arise from their different magnitudes or thickness, and the colours are generally arranged in parallel bands, and vary with the varying obliquities at which they are seen.

Sir David Brewster communicated also 'A notice respecting the cause of the beautiful White Rings which are seen round a luminous body when looked at through certain specimens of Calcareous Spar.' By varying the inclination of the spar, the rings increase and diminish, each of them in succession, contracting into a luminous spot and disappearing, and then expanding into rings as before. The two rings are produced from the two images formed by double refraction, and hence the light of one ring is oppositely polarized to that of the other. When the ordinary and the extraordinary ray are refracted in lines parallel to the edge of the rhomb, which they are at different incidences, their respective rings disappear. At oblique incidences the rings are highly coloured, and when the dispersive action is small they have a bright silvery whiteness. Sir David Brewster stated that they were produced by minute tubes in the mineral, of which there were many thousands in an inch, and that these tubes were parallel to one of the edges of the rhomb, viz. to that edge to which the refracted ray was parallel when each ring became a luminous spot.

'On the Quantities of Rain received in gauges at unequal elevations upon the Ground,' by Prof. Phillips. The author, referring to three Reports which he had already presented, observed that the results arrived at, on York Minster, on the Yorkshire Museum, and on the ground at York, for three years, appeared to require no repetition, and that the reasoning on the results having been generally accepted, he should have thought it unnecessary to recal attention to the subject, unless he had some new facts to communicate. On duly estimating the force of the objections which had been, or might have been, urged against the former experiments, such as the influence of local eddies and currents of wind about the Minster and Museum, and such buildings generally. Prof. Phillips resolved to establish a registration of gauges raised into the open air, to various heights, independent of buildings. He had carried on trials of this kind at intervals for more than five years, and after using globular gauges, and various modes of measuring the rain collected, he had finally employed for the last two years, funnel gauges, emptying themselves into reservoirs placed in the ground. Thus some particular difficulties were obviated, and a consistent tally of results obtained. In 1843, from January 9 to October 14, he had obtained registrations of the gauges almost continuously, and in 1844, a similar series from January 1 to September 2, was recorded for him by Mr. Cooke. The gauges are five in number, at 1½, 3, 6, 12, and 24 French feet above the ground. The registrations for the two periods are as under:—

	1843. Inches.	1844. Inches.	Sum. Inches.
24	14·618	9·540	24·158
12	15·419	10·620	26·039
6	15·549	10·640	26·189
3	15·608	10·630	26·238
1½	15·619	10·940	26·559

On these facts the author forbore to comment, having the intention to vary the experiments.

The Earl Fitzwilliam observed, that although the quantities collected in the several gauges differed somewhat for the two years, yet it was remarkable that the proportions were much the same.

'On Simultaneous Barometrical Registration in the North of England,' by Prof. Phillips.—Following out in a limited district the plans of contemporaneous hourly registration, which had been prosecuted by Sir J. Herschel and M. Quetelet, for larger areas, the author found the means to combine observations on the barometer, attached thermometer and direction of wind, for twenty-four hours in each month, at nine stations in the north of England: viz. Kendal, Shields, Whitby, Scarborough, Hull, York, Sheffield, Birmingham, Manchester. The observations of five of these stations for six months, had been approximately discussed, viz. those of Shields, Hull, York, Sheffield and Birmingham, and the results projected in diagrams. They showed, 1. the remarkable *general* accordance in the forming of the contemporaneous curves at all the stations. 2. The various limits of the deviations from uniformity; never amounting at any two stations to above one-twentieth of an inch. 3. The passage of waves of greater or less pressure in directions nearly corresponding to the path of the wind at the time, and with velocities which appear proportioned to the general movement of the atmosphere at the time, viz. twenty to forty miles an hour. (The author announced a further communication on this subject in 1845.)

The next communication was from Mr. Luke Howard, 'On the Mean Year, or Solar Variation of the Barometer in the Climate of London.'—Mr. Howard exhibited curves which showed the mean annual pressure and temperature, and the quantity of rain, during a cycle of eighteen years. This period he conceived long enough to eliminate the lunar influence which meteorologists had for some time been willing to admit the existence of, and to exhibit that of the sun alone. The developement of Mr. Howard's views depend so much on explanations in detail of the diagrams, that it is not possible for us to give them. The observations seemed to show a succession of nine warm and nine cold years, with—as might be expected—occasional irregularities and similar successions in respect of rain, but with a cycle of only half that duration. In the annual curves, deduced from the monthly means of the whole period, much greater uniformity is observed, and both the rain and barometric pressure follow more closely the march of the temperature.

The Rev. Dr. Robinson expressed a hope that these speculations of Mr. Howard might be confirmed, or rendered more precise, by the extensive observations now established at Kew. He could not help regretting, however, that Mr. Howard had not con-

joined the state of the wind and hygrometer; as it was obvious, from Colonel Sabine's paper on the Meteorology of Toronto, that the latter was intimately connected with barometric indications, while it was equally plain, that the former influenced the amount of rain.

'Contributions to Actino-Chemistry. On the Amphitype, a new Photographic process,' by Sir J. Herschel.—At the end of my paper, 'On the Action of the Solar Spectrum on Vegetable Colours,' communicated to the Royal Society in 1842, a process is alluded to (in Art. 230), by which positive pictures are obtained, having a perfect resemblance to impressions of engravings taken with common printers' ink. I had hoped speedily to have perfected this process so far as to have reduced it to a definite statement of manipulations, which would insure success. But, capricious as photographic processes notoriously are, this has proved so beyond even the ordinary measure of such caprice; and, having of late been able to give little or no time to this pursuit, I have thought it preferable to describe the process in a general way, and in a form in which I have found it frequently, and sometimes eminently successful; not so much for the sake of its results, which yet are not wanting in interest or beauty, as for the curious and very complicated photographic habitudes of iron, mercury, and lead which are concerned in their production,—rather, in short, as a contribution to the newly-created science of actino-chemistry, than to the photographic art. Paper proper for producing an amphitype picture may be prepared either with the ferro-tartrate or the ferro-citrate of the protoxide or the peroxide of mercury, or of the protoxide of lead, by using creams of these salts, or by successive applications of the nitrates of the respective oxides, singly or in mixture, to the paper, alternating with solutions of the ammonio-tartrate or ammonio-citrate of iron,* the latter solutions being last applied, and in more or less excess. I purposely avoid stating proportions, as I have not yet been able to fix upon any which certainly succeed. Paper so prepared and dried takes a negative picture, in a time varying from half an hour to five or six hours, according to the intensity of the light; and the impression produced varies in apparent force from a faint and hardly perceptible picture, to one of the highest conceivable fullness and richness both of tint and detail, the colour in this case being a superb velvety brown. This extreme richness of effect is not produced except lead be present, either in the ingredients used, or *in the paper itself*. It is not, as I originally supposed, due to the presence of free tartaric acid. The pictures in this state are not permanent. They fade in the dark, though with very different degrees of rapidity, some (especially if free tartaric or citric acid be present) in a few days, while others remain for weeks unimpaired, and require whole years for their total obliteration. But though entirely faded out in appearance, the picture is only rendered dormant, and may be restored, changing its character from negative to positive, and its colour from brown to black (in the shadows) by the following process:—A bath being prepared by pouring a small quantity of solution of pernitrate of mercury into a large quantity of water, and letting the sub-nitrated precipitate subside, the picture must be immersed in it, (carefully and repeatedly clearing off all air bubbles,) and allowed to remain till the picture, (if anywhere visible,) is entirely destroyed, or if faded, till it is judged sufficient from previous experience; a term which is often marked by the appearance of a feeble positive picture, of a bright yellow hue, on the pale yellow ground of the paper. A long time (several weeks) is often required for this, but heat accelerates the action, and it is often complete in a few hours. In this state the picture is to be very thoroughly rinsed and soaked in pure warm water, and then dried. It is then to be well ironed with a smooth iron, heated so as barely not to injure the paper, placing it, for better security against scorching, between smooth clean papers. If then the process have been successful, a perfectly black, positive picture is at once developed. At first it most commonly happens that the whole picture is sooty or dingy to such a degree that it is condemned as spoiled, but on keeping it between the leaves of a book, especially in a moist atmosphere, by extremely slow degrees this dinginess disappears, and the picture disengages itself with continually increasing sharpness and clearness, and acquires the exact effect of a copper-plate engraving on a paper more or less tinted with pale yellow. I ought to observe, that the best and most uniform specimens which I have procured have been on paper previously washed with certain preparations of uric acid, which is a very remarkable and powerful photographic element. The intensity of the original negative picture is no criterion of what may be expected in the positive. It is from the production, by one and the same action of the light, of either a positive or a negative picture according to the subsequent manipulations, that I have designated the process, thus generally sketched out, by the term *amphitype*,—a name suggested by Mr. Talbot, to whom I communicated this singular result; and to this process or class of processes (which I cannot doubt when pursued will lead to some very beautiful results,) I propose to restrict the name in question, though it applies even more appropriately to the following exceedingly curious and remarkable one, in which silver is concerned. At the last meeting I announced a mode of producing, by means of a solution of silver, in conjunction with ferro-tartaric acid, a dormant picture brought out into a forcible negative impression by the breath or moist air. The solution then described, and which had, at that time, been prepared some weeks, I may here incidentally remark, has retained its limpidity and photographic properties quite unimpaired during the whole year since elapsed, and is now as sensitive as ever,—a property of no small value. Now, when a picture (for example an impression from an engraving) is taken on paper washed with this solution, it shows no sign of a picture on its back, whether that on its face be developed or not; but if, while the actinic influence is still fresh upon the face (*i. e.* as soon as it is removed from the light), *the back* be exposed for a very few seconds to the sunshine, and then removed to a gloomy place, a *positive picture, the exact complement of the negative one on the other side*, though wanting of course in sharpness if the paper be thick, *slowly and gradually makes its appearance* there, and in half an hour or an hour acquires a considerable intensity. I ought to mention that the "Ferro-tartaric acid" in question is prepared by precipitating the ferro-tartrate of ammonia (ammonio-tartrate of iron) by acetate of lead and decomposing the precipitate by dilute sulphuric acid.

P.S. When lead is used in the preparation of Amphitype paper, the parts on which the light has acted are found to be in a very high degree *rendered water-proof*.

Mr. Hunt then made a communication, 'On the Influence of Solar Rays in Chemical and Electro-Chemical Action.'

'A Year's Meteorological Observations made at Aden,' by Serjeant Mayes.

Mr. Ronalds then made a 'Report on the Electrical Observatory at Kew.'

Dr. Robinson said, they had been made acquainted, at Cork, with some of the details—in particular with Mr. Ronalds's contrivance for preserving the insulation by means of air heated by small lamps, so as to carry off all moisture. He would only in addition particularize the arrangement for recording the electrical tension of the atmosphere at any required intervals. An arm attached to the conductor, which is insulated by the contrivance just mentioned, is carried round by clock-work, and charges, at any required epoch, a Leyden jar, so contrived as to retain for a long period its charge without diminution.

Dr. Robinson then gave a 'Provisional Report of the Committee appointed to conduct Experiments with Captive Balloons.'—Dr. Robinson stated that the plan of having the telegraphic wires separate from the moorings of the balloon had been changed, and a single cord, *wormed*, as the sailors call it, with copper wire, substituted. This, besides being more manageable, will permit a greater elevation to be attained.

Mr. Whitworth then exhibited an instrument for measuring bodies to a very minute degree of accuracy.—It consisted of a strong frame of cast iron, at the opposite extremities of which were two highly finished steel cylinders, which traversed longitudinally by the action of screws one-twentieth of an inch in the thread; these screws were worked by two wheels, placed at opposite extremities of the frame, the larger of which had its circumference divided into five hundred equal parts; the ends of the cylinders, at the places where they approached each other, were reduced to about a quarter of an inch, and their hemispherical ends were highly polished. To measure with this instrument, the large circle was brought to its zero, and the body to be measured being placed between the cylinders, the small circle was turned until the two cylinders touched the opposite sides of the body, which being removed, and the large circle turned until the ends of the two cylinders were brought to touch the turns and parts of a turn required for this, gave the breadth of the body which had been interposed to the ten-thousandth part of an inch, and since the one-tenth of one of the divisions could be readily estimated, the size of the body could be thus estimated easily to the one-hundred-thousandth part of an inch. Mr. Whitworth stated, that in the accuracy required in modern workshops, in fitting the parts of tools and machines, the two-foot rule heretofore in use is not by any means accurate enough; his object was to furnish ordinary mechanics with an instrument which, while it afforded very accurate indications, was yet not very liable to be deranged by the rough handling of the workshop; and he conceived this instrument secured those advantages. It surprised himself to find how very minute a portion of space could be by it, as it were, felt. By it the difference of the diameters of two hairs could be rendered quite palpable.

MONDAY.

Section B.—CHEMISTRY AND MINERALOGY.

Description of an Air-Duct to be used in Glass Furnaces, for the Prevention of Smoke, with models, by Z. M. Greenhow.—Smoke, it is assumed, must be prevented by the supply, under proper conditions, of additional quantities of oxygen gas. Though this intention has been successfully carried out in steam-engine and other furnaces, no attempt has been successful to prevent the annoyance occasioned by glass furnaces. One of Mr. Greenhow's models represented the reverberatory furnace used in the manufacture of crown glass. In this kind of furnace the smoke and products of combustion escape through the openings in the sides, which give the workmen access to the pots of glass, and are unprovided with flues. To provide the necessary supply of fresh air, Mr. Greenhow proposes a perpendicular air-duct (made of the same refractory clay of which the glass pots are constructed), rising through the middle of the fire, and supported by the stone arch on which the bars rest. This air-duct rises to the height of 5 feet within the furnace, is 1 foot in diameter, and distributes, through numerous apertures, any quantity of air that may be required for the completion of the combustion of the fuel; and from its situation in the centre of the furnace, it must soon acquire and communicate a high degree of temperature to the air it transmits. Mr. Greenhow showed a second model of a steam-engine furnace with a horizontal air-duct placed anterior to the bridge which it crowns and overlaps. At this situation heated air is distributed through small apertures, so as to mingle with the burning gases and insure their more complete combustion.

'On some Products of the Decomposition of Erythrin, by Dr. Schimk.

'Observations on the Theory and Practice of Amalgamation of Silver Ores in Mexico and Peru,' by T. C. Bowring.—It is contended that, in the ordinary processes, the copper employed in the "tortas" is converted into an oxy-chloride, and hence it is proposed to use directly this oxy-chloride of copper, instead of forming it in re-process; by this, a saving of time, labour, and materials is effected, and it appears a much larger quantity of silver obtained. This salt is best formed by exposing the proto-chloride of copper to the action of the air, or by immersing the finely divided metal in a weak solution of salt. This process has been

* So commonly called, and sold as such, but as I am disposed to regard their composition, their chemical names would be ferro-tartrate and ferro-citrate of ammonia.

extensively employed in the district of Guadalupe by Calvo with success.

'On a Method of Electrotype, by which the Deposition on Minute Objects is easily accomplished,' by L. B. Ibbetson.—From the difficulties which arose from the application of plumbago, in the ordinary manner, a portion of the plumbago was united with a solution of phosphorus in oil, and the article to be electrotyped immersed in it. It thus became covered with a coating, on which the metal was deposited in a beautiful and uniform manner. Some specimens of cactuses thus covered with metal were exhibited.

Prof. Grove communicated a notice by M. Gassiot, of a repetition of his experiment on the production of electricity without contact. As M. Gassiot's paper appears in the *Philosophical Magazine*, we need not do more than refer to it. Some allusion having been made to the curious phenomena observed by Moser and Mr. Hunt, of the effects which bodies in juxtaposition produced on each other, Mr. Hunt remarked, that he was now inclined to refer all the phenomena to electrical excitation, rather than to any calorific disturbance, as he at first imagined.

'On the influence of Light on the Chemical Compounds, and Electro-Chemical Action,' by R. Hunt.—After alluding to Sir John Herschel's experiments on the chloride of platinum, neutralized by lime water, from which a platinate of lime was precipitated by the influence of the solar rays, and to Dr. Draper's observations on the power which the solar beams had of imparting a property to chlorine of uniting with hydrogen under circumstances in which the same element kept in the dark would not unite, Mr. Hunt called attention to some experiments in which still more remarkable results had been obtained. If a solution of mineral chameleon be made in the dark it does not undergo any change for many hours—whilst a similar solution will, if exposed to sunshine, precipitate heavily almost immediately. Sulphate of iron dissolved in common water, will, even in the dark, after some hours, give a precipitate of carbonate of iron—but if exposed to sunshine, this takes place instantly, and the weight of the precipitate, up to a certain point, is in both these cases a measure of the quantity of light to which the solutions have been exposed. A contrary effect to this has also been observed: if a solution of the bi-chromate of potash be mixed with one of sulphate of copper, and the mixture be set aside in the dark for twelve hours, the glass will become thickly coated with a chromate of copper, but a similar mixture exposed to the sunshine shows no such effect. Several solutions of the salts of silver were exposed to sunshine, whilst portions of the same solutions were kept in the dark. When small quantities of the sulphate of iron were added to these solutions it was found that those which had been exposed to sunshine gave a precipitate immediately, whereas those which had been preserved in the dark did not precipitate for some time. It has also been observed that bi-chromate of potash exposed to bright sunshine precipitated chromate of silver of a much more beautiful colour than a similar solution which had been preserved in darkness. A similar effect was observed in precipitating Prussian blue by a solution of the ferro-prussiate of potash which had been exposed to the sun—the colour being infinitely more beautiful than that thrown down by a solution which had not been so exposed. A solution of the iodide of potassium was put into a glass tube, the lower end being closed by a diaphragm; this was put into another vessel containing a solution of nitrate of silver, and a platina wire passed from one solution into the other. Such an arrangement being placed in the dark, a beautiful crystallization of metallic silver took place about the wire, but if placed in the sunshine this crystallization was entirely prevented. The attention of chemists was called to these results, which certainly show that the agency of the chemical rays must in future form an important subject of investigation, particularly when any delicate analysis is desirable. These and similar experiments will form an important branch of chemical science, for which the epithet of Actino-Chemistry has been proposed by Sir John Herschel.

'On the influence of Fucoidal Plants upon the formations of the Earth: on Metamorphism in general, and particularly the Metamorphosis of the Scandinavian Alum Slate,' by Prof. G. Forchhammer.—It was remarked by the Professor that geologists had occupied themselves by extensive observations on the beds of sand and clay which have been carried into the ocean, but few have paid any attention to the soluble salts, which are removed from the dry lands by the action of rain. Thus large quantities of potash and lime are constantly being carried into the ocean. The conditions of marine vegetation were next examined, and the analysis given of a great many fucoidal plants, all of which contained an exceedingly large amount of potash, often as much as 5 and in some cases 8 per cent. Sea water is found to contain but little of this alkali; it must therefore be concluded, that the plants of the ocean have the power of separating the potash readily. Of magnesia, about 1 per cent. of the weight of the dried plant was generally found in the ashes. This chemical constitution of the ashes of the fucus tribe explains several great phenomena in the general life of nature; and it was suggested that by returning the sea-weed to the land in the state of manure, we should be restoring to it the potash of which it had been deprived. The memoir then entered extensively into the question of metamorphism, and gave an examination of the clays of the Scandinavian district. It was then shown that the formation of beds where fucoidal plants have grown had a considerable influence on their structure and composition, as they would derive many of their constituents from them. It was conjectured that the conditions of the alum slate of Scandinavia were thus modified. As this paper will be printed entire in the Reports of the Association, we give but a short abstract.

Prof. Liebig made some remarks on the necessity of alkaline bases for plants, and on the remarkable facts brought forward by Prof. Forchhammer, that whilst sea-water contained in 1,000 grains only 1 grain of potash, so large a portion should be found in the fucoidal plants.—Mr. Lyell observed, that the attention of chemists being turned to these great geological questions, he anticipated important results to science. He had visited the district described, and confirmed the statement given.

TUESDAY.

'On the Amphitype—a New Photographic Process,' by Sir John Herschel, [see Section A. *ante*, p. 954].

Mr. Hunt remarked, that, in deference to Sir John Herschel, Dr. Daubeny, and others, he should abandon the name "Energia," and where he wished to express the chemical principle, as distinguished from light, he should adopt the word "Actinism," which term would not involve the idea of a substantial element, but might be considered as expressing only a peculiar manifestation of actinic influence, leaving the question still open for investigation.

Dr. Thomas Wood communicated a new photographic process, which consisted in first soaking paper in water containing two drops of muriatic acid to three ounces of water. It is then to be washed over with a mixture of half a drachm of syrup of ioduret of iron and two or three drops of tincture of iodine in two drachms and a half of water. It is to be dried with bibulous paper, and washed over evenly with a solution of nitrate of silver, twelve grains to the ounce of water.

Mr. Fox Talbot made some remarks on the process which had been brought forward on Saturday by Mr. Robert Hunt. Since the publication of Mr. Hunt's process in the *Athenæum* he had extensively used it, and by applying the sulphate of iron to papers prepared with the iodide of silver, he had procured portraits in two seconds. He did not doubt but this discovery of Mr. Hunt's would lead to some important applications of the photographic art. He, however, objected to the name employed, and still more strongly did he object to the name proposed by Dr. Draper to designate the supposed new imponderable. He thought it was the duty of the Chemical Section to give an expression of their opinion on this matter, by which these fanciful coinages would be avoided. With regard to Mr. Hunt's term, Energia, he saw nothing to warrant the supposition that photographic phenomena were independent of light. It was well known, that some of the lower order of animals were enabled to see by rays which produced no effect on the eye of man. Hence he saw no impropriety in speaking of invisible rays. Mr. Hunt rested his position with greater confidence on the fact, that where the prismatic spectrum gave the greatest quantity of light, all chemical power was nearly wanting.—Prof. Graham then proposed, that the Chemical Section at York express their approbation of the term Actino-Chemistry, proposed by Sir John Herschel, and that it be henceforth adopted to indicate that particular department of chemistry which is connected with the influence of the solar rays.

Some impressions, sent by Dr. Hamel, from Daguerréotype plates, which had been etched in Paris by the agency of an acid, were exhibited. The details of the process were not satisfactorily stated.

'On the Supposed Formation of Valerianic Acid from Indigo, and on the Acid which is formed by the action of Hydrate of Potash upon Lycopodium,' by J. S. Muspratt.—This paper was an examination of the very remarkable series of metamorphoses to which indigo is subjected in the processes described by Gerhardt. It is contended, that the valerianic acid produced in these experiments is not due to the indigo, but to foreign matters mixed up with it. A peculiar oleaginous matter had been obtained from Lycopodium, having an acid character.

'On the Action of Nitric Acid on Naphtha,' by Drs. Smith and Leigh.—This was an account of experiments which are still in progress, showing that by the action of nitric acid on naphtha, a variety of bodies isomeric with turpentine might be produced.

'On increasing the Intensity of the Oxyhydrogen Flame,' by Mr. C. J. Jordan.—This paper consisted entirely of suggestions.

'Account of Experiments on Heating by Steam,' by B. W. West, Esq.—These experiments were instituted for the purpose of ascertaining if water heated by steam reached the true boiling temperature. In several experiments it was found, that although the water was violently agitated, and steam escaped in abundance, that the thermometer indicated 190°, 205°, and 207°, and could not be raised to the true boiling point. A false bottom being added to the receiving vessel pierced with numerous small holes, it was found easy, with even a smaller quantity of steam, to maintain the temperature at 212°.

'Experiments on the Formation or Secretion of Carbon by Animals, the disappearance of Hydrogen and Oxygen, and the Generation of Animal Heat during the process,' by R. Rigg.—From experiments made with animals and birds, the author is led to conclude that animals secrete carbon; and on a recapitulation of the elements comprised in the animals, in the bread, and in the water, he is led to infer that hydrogen and oxygen undergo some process of natural chemistry, having this secreted carbon as a result: and by calculating for the specific heats of these bodies, he finds that these animals generate from three to six times the heat by the formation of the carbon they secrete, as by the formation of the carbonic acid they respire; and that this secretion of carbon, and consequently generation of heat, is influenced by the quality and quantity of food, exertion, and quiet and active habits of the animal;—the secretion of carbon being essential to animal life; the generation of heat a great source of animal heat.

'On the Alteration that takes place in Iron by being exposed to long-continued Vibration,' by Mr. W. Lucas.—At Cork, this subject was again brought forward, and certain specimens of iron exhibited, in order to show the effects produced upon the iron by being exposed to a certain degree of concussion or vibration during the process of swaging, and again restored to its original state by being annealed, in accordance with the results detailed by Mr. Nasmyth, at Manchester, in 1842; in addition to these, also were exhibited specimens of portions of the same iron that had been exposed to the concussion of a large till hammer, working at the rate of about 350 strokes per minute, which occasioned the bars of iron to break short off at the point of bearing in the course of twenty-four hours; there was also shown a portion of one of the hammer

shafts, the texture of which had evidently been altered, probably by the long-continued and repeated concussions to which it had been exposed, for instead of breaking with the peculiar splintery fracture common to wood, it broke with a peculiar short fracture, and this, I am informed, is a common occurrence. In continuance of these experiments upon the effects of concussion or vibration, Mr. Lucas laid before the Section the results of some further experiments.

'On the Constitution of Matter,' by Sir G. Gibbes, M.D.—The principal point in the paper was, the formation of Heat by the union of the two fluids of electricity, which, with some other long exploded opinions, Sir G. Gibbes endeavoured to revive.

MONDAY.

Section C.—GEOLOGY AND PHYSICAL GEOGRAPHY.

Prof. Edward Forbes read a portion of the Report of the Dredging Committee.—[Reported in Section D.]

'On the discovery of a large specimen of *Plesiosaurus Macrocephalus*,' by Mr. Charlesworth.—This specimen was found about three months previously in quarrying the shale at the Kettleness alum-works, a few miles north of Whitby, and, at the request of Mr. Charlesworth, the lessees of the works had allowed him to remove it to the museum of the Yorkshire Philosophical Society, with a view to its exhibition at the meeting of the Association.

'On the discovery by Mr. Wood of an Alligator associated with new genera of Mammalia, in the freshwater cliffs at Hordwell, Hants.'—Mr. Wood, on quitting England had intrusted to Mr. Charlesworth, for publication, a paper on the eocene freshwater formations at Hordwell, including notices of many new fossils which he had discovered in that locality. The most important of these was an alligator; of this a great portion of the head and many bones of the skeleton were obtained.

Mr. Murchison read part of a communication from Prof. Loven, on the Bathymetrical Distribution of Marine Animals in the Scandinavian Seas. [Reported in Section D.]

Report on the Fossil Fishes of the London Clay, by M. Agassiz.—The group of fish peculiar to the London clay, whose remains are particularly abundant in the Isle of Sheppy, do not exhibit those strange forms which distinguish most of the fish of the more ancient formation; but everything reminds us of the fish living in the present seas. The examination of these remains is attended, however, with difficulty, on account of the state in which the specimens are found, imbedded in hard clay, which has replaced the soft parts of the fish, and as they belong chiefly to the cycloid and ctenoid orders, with soft scales, which are generally of small size, and easily detached and broken, the crania are the only portions usually preserved entire. In the classes of reptiles or mammalia the peculiarities presented by the cranium points out with certainty the relations of the animal to which it belonged; but nothing is so variable as the shape of the bones which make up the skeleton of a fish's head, and the multitude of processes and depressions serving for the attachment of muscles, gives to this part such a diversity that the ichthyologist must often despair of being able to refer these fossil crania to their proper types; especially as they are often incomplete, wanting the jaws, the bones of the face, and the opercular and branchial apparatus, leaving only the bony inclosure of the brain. The author gives a detailed anatomical description of the various families. He then institutes a comparison between the species found at Sheppy and those now existing on the English coast, and concludes, that although their general character is somewhat different, yet their distribution has taken place according to the same laws. The forty-four species of fish, whose osseous remains are found at Sheppy, are referred to thirty-seven genera, nearly all of them unknown in the present seas; and, excepting the gadoids, or cod tribe, their recent representatives are mostly confined to southern seas. The important evidence to be derived from a comparison of the scales of these species with those of existing fish, remains to be obtained, and is attended with difficulty, as it requires the aid of the microscope.

'On gigantic extinct Mammalia in Australia,' by Prof. Owen.—The author observes that the first information respecting the extinct Fauna of Australia was derived from Major Mitchell's researches in the ossiferous caves of Wellington Valley. All the remains there discovered, with one exception, indicated the existence of only marsupial animals, of extinct species, differing chiefly in being larger than any now living. The specimen, which thus differed from the the rest, was the fragment of a lower jaw, with molar teeth and the socket of a single incisor; it most nearly resembled the wombat, and had been named *Diprotodon* by Mr. Owen. Since that period (1835), Sir Thomas Mitchell, Count Strelitzky, and other gentlemen, have obtained collections of bones from caves on the Darling Downs, west of Morton Bay, and other localities at a distance from Wellington Valley. From an examination of these, Mr. Owen has determined the former existence in Australia of a Mastodon, nearly allied to the *M. angustidens*, remains of which are so abundant in Europe, and also allied to the *M. Andium* of North and South America; and he observes that the fact of the wide distribution of remains of the Mastodon in Europe, Asia, and America, prepared him to receive with less surprise the unequivocal evidence of its existence in Australia also. Mr. Owen then proceeded to the consideration of the fossil remains of the Marsupialia, a class of animals to which, with the exception of small Rodentia, such as rats and mice, all the indigenous quadrupeds of Australia belonged. With regard to the Diprotodon before mentioned, much additional evidence had been required to establish the marsupial character of a quadruped as large as a rhinoceros; and amongst the remains lately obtained in the bed of the Condamine river, at Morton Bay, was a specimen consisting of the anterior part of the lower jaw, with the base of a tusk, and a portion of the molar teeth, the tusk being identical with one from Wellington Valley. This specimen shows that the animal possessed large incisive tusks, combined with molar teeth like those of the kangaroo, characterized by two transverse ridges; the marsupial character of these remains was also indicated by the bending in of the angle of the jaw. Mr. Owen referred to a second gigantic type of extinct marsupials; but observed that further evidence relative to the marsupial character of these great quadrupeds was most desirable. From examination he concluded that the great extinct herbivorous marsupials did not exhibit the peculiar disproportion of the extremities characteristic of the kangaroos, but were possessed of legs of nearly equal length, like the wombat. The species of marsupial already known to inhabit Australia form, as Cuvier observed, a small chain of animals, representing the quadrupeds of America and Europe, which was now rendered more complete by the discovery of extinct genera representing the Pachydermata, and equal to the medium bulk those animals now attain.

Mr. Strickland read a portion of his Report on the state of our knowledge of Ornithology. [Reported in Section D.]

'On an anomalous Structure in the Paddle of a species of Ichthyosaurus,' by Mr. H. E. Strickland.—The specimens exhibited were the right and left humerus, with the next joints, corresponding to the fore-arm, attached, but in each this part consisted of three bones, nearly equal in size, instead of two. They were from the lias in Warwickshire.

Section D.—ZOOLOGY AND BOTANY.

Mr. H. Strickland read a Report on the recent progress and present state of Ornithology.

'A Monograph of the Sub-family Odontophorinæ or Partridges of America,' by J. Gould.—The subjects of the present monograph were interesting from their probable utility whenever the countries of which they are denizens shall come under the dominion of civilization, as well as for naturalization in Europe; many of the species, being sufficiently hardy to brave the severities of our winters, are likely to thrive in situations suitable to the partridge and quail. All the members of the group are strictly American, and by far the greater number of the species natives of that portion lying between the 30th degree of north latitude and the equator. Four species are included in the Fauna of North America, and it would be these in particular that Mr. Gould would suggest as the species most likely to thrive in Europe. He next proceeded to state that thirty species of this group were now known to him, two only of which were included in the works of Linnæus, and nine in the 'General History of Birds,' published by Latham in 1823. And even in the late revision of the subject in the illustrations of Ornithology, the number of species were only increased to eleven. Vieillot was the first who conceived the propriety of separating one of the members of the present group from the old genera Tetrao and Perdix, proposing the term Odontophorus for the *Tetrao guianensis* of Gmelin; subsequently Stephens and Wagler had proposed a further subdivision of the group, the former proposing the term Ortyx for Virginian partridge, the well known *Perdix Virginiana*, and the latter that of Callipepla, the type of which is the *Ortyx squamata* of Vigors. If it were admitted that the American partridges constituted more than one genus, the genera must not be confined to three or four, but must extend at least to six. In concluding, Mr. Gould remarked that the partridges of America constitute a well defined family, distinguishable from the grouse and partridges of the old world in many particulars, among which may be intimated the total absence of any spur or spur-like appendage on the torsi, and by the possession of teeth-like processes on the edges of the under mandible. The subject was illustrated with drawings of most of the species.

Report 'On the Birds of Yorkshire,' prepared by T. Allis.—The Report added the following to the before recorded birds of Yorkshire. The Golden Oriole, a fine female specimen, shot near the Sperm Lighthouse in 1834; Fire-crested Wren, shot at Wood End, near Thirsk; Branded Titmouse, from the neighbourhood of Huddersfield; Black Redstart, several specimens of which were taken by a bird-catcher near Leeds; the Stock Dove, killed near York, and occurring not unfrequently near Sheffield; it has also been seen in Feversham Park; Little Bittern, shot at Birdsall, near Malton; Polish Swan, killed near Bridlington; Gull-billed Tern, taken alive near Leeds; and the Ivory Gull, shot some years ago off Scarborough by a gentleman resident in York. The Report was remarkable for the number and variety of marine birds reported to occur about Huddersfield and Barnsley, apparently in a state of transition from the east to the west seas; as also for recording the best instances of the occurrence of that noble bird the Great Bustard, which has now been extinct about twenty years in the county of York; it also notices the great diminution of numbers of many species formerly plentiful, and which, in the course of a few more years, will also probably be numbered with the extinct; and has added numerous individuals to those already recorded of many of the rarer species; also a list of the time of arrival of many of our summer visitants, from the pen of John Hepenstall, of Sheffield, and a register of the arrival and departure of the swallow tribe, from the pen of W. Gett, Esq., of Leeds; the number of Yorkshire species appears to be 25.

'On the Anatomy of *Acteon viridis*,' by Prof. Allman.—The author controverted the assertions of M. de Quatrefages relative to numerous points in the anatomy of this little mollusc, and to the position assigned to it by the French naturalist in his new order Phlebenterata.

Prof. Allman brought before the Section a Helianthoid zoophyte, which he had just discovered at Cruick Haven, upon the southern coast of the county of Cork, and which must probably constitute a new genus. The zoophyte is one of extreme beauty, and constitutes a connecting link between Achnia and Lucernaria, being distinguished from the former by its capitate tentacula, and from the latter by their arrangement in two *uninterrupted* series.

'On the structure of the Lucernariæ,' by Prof. Allman.—In this communication certain undescribed peculiarities in the anatomy of these zoophytes were laid before the Section; and the existence in the tentacula and other superficial parts of the animal, of organs analogous to the darts of Hydra, and to the spiral bodies of the Helianthoid zoophyte, already described, was demonstrated.

Prof. E. Forbes remarked on the importance of

the paper just read, especially as the observations of Prof. Allman clearly proved the incorrectness of the views of M. Quatrefages on this family of zoophytes.

'On some Animals new to the British Seas,' discovered by R. M'Andrew, Esq., by Prof. E. Forbes.—The additions to the British Fauna now brought forward were taken by Mr. M'Andrew on the western coast of Scotland. They are, 1st, a remarkable new species of Virgularia. This sea-pen is no less than 2 feet 6 inches in length, thus far exceeding in dimensions any known zoophytes of the genus, and differs also from all the described species in having a perfectly quadrangular skeleton; hence it is proposed to name it *Virgularia quadrangularis*. It was taken near Kerrera, in 20 fathoms water, on muddy ground, and is probably abundant there. 2nd, *Pleurotoma teres*, a shell, of which only two specimens have hitherto been found, and those on the coast of Asia Minor. The British specimen is much larger than either of those taken in the Ægean by Prof. E. Forbes, and was dredged in 40 fathoms water on mud. 3rd, *Eulima Macandræi*, a small, but beautiful new species, differing from its British allies in the narrowness, flatness, and number (11) of the whorls, and in the angularity of its aperture. 4th, the *Emarginula crassa* of Sowerby, hitherto only known as a fossil, in which state it is found in the various crag deposits, and by Mr. Lyell in the Pleistocene of Norway. It is a most beautiful species, and the largest European member of the genus. Mr. M'Andrew dredged it alive in 25 fathoms in Loch Fine. It appears to have been also taken within the last year by Mr. Jeffreys and Mr. Alder. 5th. The singular radiate animal, which Müller figured in the *Zoologia Danica*, under the name of *Holothuria squamata*. Several other Mollusca and Radiata, probably new to the British Fauna, but as yet not sufficiently investigated, were also laid before the meeting by Mr. M'Andrew.

The Secretary then read part of a letter from Prof. Loven, of Stockholm, on the subject of Prof. E. Forbes's bathymetrical researches. After remarking on the close correspondence between his own researches and those of Prof. Forbes, he says, "As to the regions, the Littoral and Laminarian are very well defined everywhere, and their characteristic species do not spread very far out of them. The same is the case with the region of Florideous Algæ, which is most developed nearer to the open sea. But it is not so with the regions from 15 to 100 fathoms. Here is at the same time the greatest number of species and the greatest variety of their local assemblages; and it appears to me that their distribution is regulated, not only by depths, currents, &c. but by the nature of the bottom itself, the mixture of clay, mud, pebbles, &c. Thus, for instance, the same species of Amphidesma, Nucula, Natica, Eulima, Dentalium, &c. which are characteristic of a certain muddy ground of 15—20 fathoms are found together at 80—100 fathoms. Hence it appears, that the species in this region have generally a wider vertical range than the Littoral, Laminarian, and perhaps as great as the deep sea coral. The last-named region is with us characterized, in the south by *Oculina ramea* and Terebratula, and in the north by Astrophyton, Cidaris, *Spatangus purpureus* of an immense size, all living between Gorgoinæ and the gigantic *Alcyonium arboreum*, which continues as far down as any fisherman's line can be sunk. As to the point where animal life ceases, it must be somewhere, but with us it is unknown. As the vegetation ceases at a line far above the deepest regions of animal life, of course the zoophagous mollusca are altogether predominant in these parts, while the phytophagous are more peculiar to the upper regions." The observation of Prof. Forbes, that British species are found in the Mediterranean, but only at greater depths, corresponds exactly with what has occurred to me. In Bohnslau (between Gottenburg and Norway) we find at 80 fathoms, species which, in Finmark, may be readily collected at 20, and on the last-named coast some species even ascend into the littoral region, which, with us here in the south, keep within 10—11 fathoms.

Section F.—STATISTICS.

Mr. Fletcher read a paper, communicated by Captain Maconochie, 'On the Statistics of Norfolk Island.'—Captain Maconochie described the soil as a rich, sharp, fine mould, calculated to start everything, but not sufficiently strong to carry vegetation to maturity, unless under favourable circumstances. Stock of all kind thrives well on the island; nothing can exceed the mutton, pork, and poultry, but the beef is not so good. The shores abound with fish, most of which are excellent. There is great want of a good harbour, but it is believed that this may be remedied. There are about twenty varieties of trees, all of which are applicable to useful purposes. The island was first occupied as a dependency of New South Wales in 1787, and was turned into a penal settlement in 1825. The total number of male convicts confined there now is 3,593. Of 1,200 returned to Sydney, 530 are free, either from expiration of sentence or pardon, 670 are still prisoners of the Crown, 11 have been reconvicted in the supreme court, and 26 at quarter sessions. Several curious anecdotes were related of the daring spirit evinced by convicts in making their escape from the island. The rate of mortality is far greater among the convicts sent direct from England than among those previously seasoned in New South Wales, and Captain Maconochie doubts the propriety of sending prisoners direct to Norfolk Island. There have been 19 executions and 17 persons killed while resisting lawful authority; but only two suicides. The educational statistics are not such favourable evidence to the moral effects of instruction as most others: and it is said that the recent convicts imported from England, though superior to the older in education, are equally remarkable for indifference to their moral duties.

'On the Statistics of Frankfort on the Maine,' by Col. Sykes.—This was a very elaborate paper. We shall merely select some points of prominent interest. Frankfort was originally the Frankford, or chief ford of the Franks; its prosperity began with Charlemagne, but was fixed by the Emperor Louis the German, who made it his chief residence A.D. 843. From its frequent vicissitudes in war, and fires, few ancient buildings remain. Its government is a very close, municipal oligarchy, which Col. Sykes explained at length; but the result may be briefly told, namely, that the chief powers are self-elected. In its administrative policy, the municipality is restrictive and intermeddling. The Jews, for instance, forming about one-seventh of the population, can only celebrate a fixed number of marriages in a year, and Christians cannot contract a marriage until they have given proof of possessing a certain amount of property. From this restriction, marriages are only in the proportion of 1 to 190 of population in Frankfort, while they are 1 to 128 in England. The demoralizing influence of this restriction appears in the fact, that 1 out of every 9 births is illegitimate. Col. Sykes then examined at considerable length how far the statistics of Frankfort, a city of 66,000 inhabitants, confirmed the received laws of vital statistics, particularly in relation to the connexions between the curves of birth and mortality with the curve of temperature, and these statistics in no instance swerved from the received laws.

Section G.—MECHANICAL SCIENCE.

'On the Causes of the great Versailles Railway Accident,' by J. Gray.—From various facts and circumstances, connected with the accident of the 8th of May 1842, on the Left Bank Paris and Versailles Railway, Mr. Gray became convinced that nothing but a failure in the front axle of the *Matthew Murray* engine could have been the first cause of her right hand front wheel first slipping within the rail; and having the inquiry thus far concentrated, he proceeded with an examination of that axle, and of the facts and incidents connected with its failure: and he came to the conclusion that, with good materials and proportions, and the axles in a state of repose as received from the forge, or, in other words, perfectly free from the effects of cold swaging, or hammer hardening, an axle in such a state, and of ample dimensions for its intended work, will effectually resist fracture for any period the wear of the journals may enable it to run; but if the dimensions be deficient, the iron will be taxed beyond its permanent cohesive power and elasticity; and, however slight the excess of exertion and fatigue may be, a gradual and inevitable dissolution of particles must result; but, beyond this, he had not met with anything, either in print, in observation, or in the course of experience, that would at all warrant a belief in iron necessarily changing its quality, or becoming crystallized by forces within the range of its permanent cohesive force and elasticity.

'On Steam Navigation in America,' by Dr. Scoresby.—Dr. Scoresby observed, that the extent of navigable waters in North America, including the coast lines and the waters of the British possessions, might be roughly estimated at 25,000 to 30,000 miles. He then alluded to the introduction of the steam-boat by Mr. Fulton, in 1807, and the rapid progress that had been made, and directed attention to the peculiarities of some of the boats, the construction of the cabins on deck, and the application of the hull of the vessel entirely to cargo, the working of the rudder at the forepart of the vessel by means of communicating rods, the use of a distinct boiler and machinery to each paddle, &c. With regard to speed, he observed that it was much beyond that of our steam-boats, from the circumstance of the Americans adopting the high-pressure principle. Whilst our boats were worked at a pressure of 5 lb. to the square inch, they thought nothing of 100 lb. or 150 lb. pressure. The most extraordinary performance of American steamers was effected by the *J. M. White*, in the summer of this year. She made her way against an average current of from 3 to 4 miles an hour, from New Orleans to St. Louis, a distance of 1200 miles, in 3 days and 23 hours, remaining a day and a half at St. Louis, unloading and loading, and reached New Orleans again, having performed a distance of from 2300 to 2400 miles in little more than 9 days. The average speed, taking advantages and disadvantages into consideration, would be 16 miles, or perhaps near 14 knots per hour.

Mr. Whitworth exhibited a machine for ascertaining the diameter of metallic cylinders described in Section A, (*ante*, p. 954).

Mr. Byrne entered into explanations of the Barege Mobile, or Canalization of Rivers, and of the Grenier Mobile, or moveable granary for preserving corn. The latter machine consists of a cylinder, divided into compartments, which will hold 800 quarters of corn. It is made of zinc and galvanized iron, and turns round like a barrel, so that the grain is thus turned over by one man daily. The advantages are, that the corn gets gradually dried, may be preserved for a longer period, bad corn is improved, grain generally comes out heavier than when it went in, and is not bruised and wasted by being turned over with the shovel. With regard to the increase it was stated at 6¾ lb. in 110 cwt. The cost of the machine is about 1*l.* a quarter.

TUESDAY.

'On the Economy of Artificial Light for Preserving Sight,' by Mr. J. Hawkins.—Few were aware, he said, of the injury inflicted on the sight by too much or too little light, and by a sudden transition from gloom to light. He had tried several experiments with a view to procure a light of a medium description. He commenced with two common candles of eight to the pound, alternately snuffing and leaving them unsnuffed, and measuring the intensity of the light by the shadows on the walls. The result of this experiment was, that he found that the candle well snuffed gave eight times the light of that which was unsnuffed. He then proceeded to a process of weighing, and found that one pound of the snuffed candles gave as much light as nine pounds of the unsnuffed candles. With regard to Palmer's and the common dip he found that a pound and a quarter of the latter, costing 5½*d.*, when well snuffed, was equal to one pound of Palmer's, costing 6½*d.*; but when the same candle was not snuffed oftener than about every ten minutes, it took four to be equal to Palmer's; and, when unsnuffed altogether, it required eleven pounds to be equal to one pound. After alluding to further experiments with candles, and also with oils, he concluded by recommending the self-snuffing candle in preference to oil-lamps.

Dr. Bevan explained a new Life Boat, which he has invented,

Dr. Scoresby read a paper 'On a new Process of Magnetic Manipulation,' by which he developed the magnetic energy of steel and iron bars.

Mr. J. G. Bodmer read a paper 'On the New Double Piston Steam Engine,' and exhibited a model. The advantages claimed are velocity, economy, peculiar expansion, diminution of strain upon the axle, &c.

'On the Great Fountain at Chatsworth, erected by the Duke of Devonshire,' by Mr. Paxton.—This fountain is supplied with water from a reservoir which covers eight acres. The fall is 381 feet, and the height which the water attains from the fountain, (or which it is expected to attain when brought into full operation,) is 280 feet.

'On the Resistance of Railway Trains,' by Mr. Scott Russell.—The author detailed a number of experiments on the Sheffield and Manchester Railway. For the purpose of these experiments it was necessary that the railway should present long and very steep gradients. The experiments were as follows:—1. Trains of carriages, empty, were put in motion at the summit of an inclined plane, at about 30 miles an hour, and were allowed to descend freely. 2. Trains of carriages, loaded, were tried in the same way. 3. The engine and tender were treated in the same way, being put to a velocity of between 30 and 40 miles per hour, and allowed to descend freely the whole length of the inclined plane without any train attached. 4. The engine and tender, with a train attached, were propelled to the top of the inclined plane, and then allowed to descend freely by gravity. By these means the following results were obtained:—1. The resistance to railway carriages at slow velocities does not exceed 8 lb. per ton. 2. The resistance to a light railway train of six carriages, at 23·6 miles an hour, was 19 lb. per ton. 3. The resistance to a loaded train of six carriages, at 30 miles an hour, was 19 lb. per ton. 4. The resistance to a light train of six carriages, at 28 miles an hour, was 22 lb. per ton. 5. The resistance to a loaded train of six carriages, at 36 miles an hour, was 22 lb. per ton. 6. The resistance to a six-wheeled engine and tender, at 23·6 miles an hour, was 19 lb. per ton. 7. The resistance to a six-wheeled engine and tender, at 28·3 miles an hour, was 22 lb. per ton. 8. The resistance to a train composed of six light carriages, with engine and tender, at 32 miles an hour, was 22 lb. per ton. 9. The resistance to a train composed of nine loaded carriages, with engine and tender, at 36 miles an hour, was 22 lb. Mr. Russell observed, that the subject was of considerable importance, inasmuch as the system adopted for laying down the gradients of new lines was of necessity regulated chiefly by the opinion of the engineer on the question of resistance. How much mechanical force is required to move a given weight of train, along a given gradient, at a given speed, was a question of which the solution was essential to sound engineering, but the profession had long felt that they were not in possession of sufficient data to determine this question.

Mr. Fairbairn read the last paper 'On the Economy of the Expansive Action of Steam in Steam Engines.'

Printed by JAMES HOLMES, of No. 4, New Ormond-street, in the county of Middlesex, printer, at his office No. 4, Took's Court, Chancery-lane, in the parish of St. Andrew, in the said county; and published by JOHN FRANCIS, of No. 14, Wellington-street North, in the said county, Publisher, at No. 14, in Wellington-street aforesaid; and sold by all Booksellers and Newsvenders.—Agents: for SCOTLAND, Messrs. Bell & Bradfute, Edinburgh; for IRELAND, J. Cumming, Dublin.—Saturday, October 19, 1844.